The American Perfumer

and Essential Oil Review

DEC. 1910

Perfumer Publishing Co.,
100 William St., New York.

SEE PAGE X

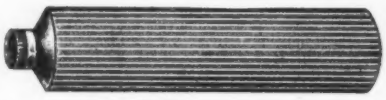
CONSOLIDATED FRUIT JAR COMPANY

FACTORIES: NEW BRUNSWICK, N. J. NEW YORK OFFICE 290 BROADWAY

Manufacturers of SHEET AND CAST METAL SPECIALTIES

Also

Screw Caps and Cologne Sprinklers for bottles. Talcum and Tooth Powder Tops. Aluminum Goods, Collapsible Tubes, Etc.



NEW CORRUGATED TUBE
Patent Pending

A PURE OTTO OF ROSE—Bagaroff

Get Sample and Prices Before
Placing Your Contracts

ARTHUR A. STILWELL & CO.

Sole Agents **28 Cliff Street, NEW YORK**

Synthetic Oils of Roses

¶ Roses grow in many varieties, and the odor of each kind usually differs slightly from that of the others. Just as there are many shades of a primary color, there are many shades of a primary odor.

¶ We have therefore devoted ourselves to the production of several distinct types of Rose odors, and these have found widespread use in the blending of rose perfumes of true rosy character, and in the production of new bouquets.

¶ These oils are characterized by their great delicacy, strength and lasting quality, the three cardinal virtues that all perfume material should have, and in this respect our synthetic oils of roses surpass many natural rose products.

M. NAEF & CO., Geneva, Switzerland

SUCCESSORS TO CHUIT, NAEF & CO.

UNGERER & CO., *Sole Agents,* :: :: **273 Pearl Street, New York**

22 Fifth Avenue, CHICAGO. 514 Arch Street, PHILADELPHIA. 244 California Street, SAN FRANCISCO.

THE AMERICAN PERFUMER
AND
ESSENTIAL OIL REVIEW

ONE DOLLAR A YEAR.
TEN CENTS A COPY.

NEW YORK, DECEMBER, 1910.

VOL. V, No. 10.

THE AMERICAN PERFUMER
and ESSENTIAL OIL REVIEW
PUBLISHED MONTHLY.
PERFUMER PUBLISHING COMPANY
100 William Street.
LOUIS SPENCER LEVY, President and Treasurer, 100 William St., } New York.
JOSEPH S. MENLINE, Secretary, 135 Broadway, }
Entered as Second-class Matter March 23d, 1907, at the Post Office at New York, N. Y., Under the Act of Congress of March 3d, 1879.

TERMS OF SUBSCRIPTION

The United States and Canada, - - $ 1.00 A Year
Foreign, - - - - - - - 2.00 " "

Subscriptions payable invariably in advance, by check, money-order, or postal-note, to order of PERFUMER PUBLISHING COMPANY.

Advertising Rates on Application.

MANUFACTURING PERFUMERS' ASSOCIATION.—President, Frank B. Marsh, 74 Reade St., New York; Secretary, Edwin Ross, 115 E. 29th St., New York.

FLAVORING EXTRACT MFRS. ASSN.—President, Wm. McCormick, Baltimore, Md.; Secretary, Dr. S. H. Baer, St. Louis, Mo.

BARBERS' SUPPLY DEALERS' ASSOCIATION.—Pres., A. T. Krank, St. Paul, Minn.; Secretary, R. F. Willie, St. Paul, Minn.

CONTENTS

It is our wish that all who read these words may make merry on Christmas Day with a full heart, and that the coming year will bring them prosperity and peace.

PROCEEDINGS OF THE SIXTEENTH ANNUAL MEETING OF MANUFACTURING PERFUMERS' ASSOCIATION.

We are in receipt of the proceedings of the sixteenth annual meeting of the Manufacturing Perfumers' Association, held in New York, April 19 to 21, 1910.

The Secretary says, in his Foreword, that much of the informal and passing debate has been eliminated, and that the reports and debates have been grouped together under subjects headings. In thus following the practice of his predecessors he has used good judgment, and it appears from a careful reading of the Proceedings that none of the really valuable material has been omitted.

Other than the listing of three active members under the heading of associate members, there are a few errors; and in all, the secretary is to be commended for having arranged a concise and readable report.

The book is of the usual size (6 ins. x 9 ins.), very well printed and bound. It will make a good addition to the library of any manufacturer in this line of business, as it marks the status of the American perfumery business as of the present time.

REPORT OF THE SECRETARY OF AGRICULTURE.

The Report of the United States Secretary of Agriculture for 1910 is just at hand, and a careful review has focussed our attention on the following sections:

ENFORCEMENT OF THE FOOD AND DRUGS ACT.—The Secretary says: "Twenty-one of the ports of entry in the United States are provided with well-equipped laboratories, and during the past year there has been great activity in ex-

amining foods and drugs to prevent any misbranded or adulterated ones from being put on the American market. During the past year 95,482 samples were examined. Of this number, approximately 3,000 were found to be illegal, and were either altogether refused admittance to the country or else admitted only after they had been properly branded or the objectional features removed or obliterated. Of the grand total above given, 5,130 samples were submitted to careful examination in the laboratory, the remainder to inspection as the products were opened by the appraisers for the assessment of duties. . . . Several years ago a great many detentions were made at the Port of New York of lemon oil sophisticated with pinene. The character of the oil offered for entry during the past year has been practically free from all objectionable features."

THE BUREAU OF CHEMISTRY.—Referring to the drug researches, the Secretary says: "The origin and sophistication of essential oils, such as peppermint and wintergreen, are subjects of an extensive investigation to determine whether different varieties of plants grown under different conditions yield oils varying from the pharmacopœial standards, and to establish methods for the satisfactory discrimination between the mixtures of substitutes and the genuine articles."

In connection with this statement, our readers will find our reference to Bulletin No. 195 of the Department of Agriculture, which is published in this issue, of considerable interest, as it deals with the production of certain essential oils in this country.

PURE FOOD CONVENTION.

The fourteenth annual convention of the Association of State and National Food and Dairy Departments was held in New Orleans, November 29 to December 2, 1910.

George L. Flanders, Assistant Secretary of the Department of Agriculture of the State of New York, was re-elected president, and the following officers were also re-elected:

Lucius P. Brown (Tennessee), first vice-president; W. M. Allen (North Carolina), secretary; Jas. Foust (Pennsylvania), treasurer; Dr. Chas. D. Woods (Maine), Dr. S. J. Crumbine (Kansas), members of the Executive Committee.

The following are the newly-elected officers:

Hamilton P. Jones (Louisiana), second vice-president; L. Davies (Washington), third vice-president.

The Resolution Committee expressed gratification at the progress already made toward securing uniformity in food and drug legislation, and urges the Association to greater efforts. They also urge upon Congress the enactment of law provided for the appointment by the President of the United States, of a food standards commission, to be composed of food law officials and chemists (State and National), representative manufacturers, producers and dealers in foods. They suggest that the commission shall have the power to fix standards to be used in the enforcement of the Food and Drugs Act.

The Association adopted the following resolution also: "Resolved, That this Association favors the enactment by Congress and the various States of a weight or measure branding law, and that any such law be so framed as to make fair and reasonable allowance for the inevitable variations of weight or measure due to shrinkage, evaporation or other natural causes and the unavoidable slight variations attendant upon the weighing or measuring of individual packages; and that the interests of consumers, manufacturers and dealers alike demand that weight and measure laws, like all food laws, should be uniform."

Contrary to custom, flavoring extract manufacturers were not singled out for intemperate abuse.

Referring to the procedure of State officials when acting under Federal Laws, Dr. F. L. Dunlap, of the Bureau of Chemistry, Department of Agriculture, says that expert chemists are now studying the manufacture of essential oils in America such as wintergreen, spearmint, etc., and in this connection he urges the necessity of knowing the real article before attempting to condemn an alleged spurious article. That is excellent advice; but we fear that it fell very largely on deaf ears, for were State food officials in general more sure of their ground before going ahead, many of the petty annoyances to which manufacturers are subjected would disappear.

For instance, one Western food commissioner refuses to recognize the existence of terpeneless extract of lemon, and holds that such an extract must be labeled "imitation."

He reminds us very much of a countryman who, on visiting the city for the first time, went to the Zoological Garden, and was deeply impressed by the animals, whose acquaintance he had theretofore made only in books. When he reached the enclosure where the giraffes were on exhibition, his face assumed a puzzled look, as he had never before heard of a giraffe nor seen an illustration of one. Finally he turned away from the animal, and, with a disgusted air, said, "H——, there ain't no such animal."

The announcement concerning the new book on flavoring extracts promised in our November issue will be withheld till next month, when we shall devote space to a complete description of contents, price, style of binding, etc.

Full descriptive circulars will be mailed to the entire trade at the same time.

Vice-Consul General William Dawson, jr., writes from Barcelona that quotations on Spanish olive oil are high and dealers expect them to go still higher. This year's output will not reach the market until December, when prices may be expected to drop. Best Andalusian oil, which ordinarily sells at $22.50 per 100 kilos (220 pounds), was quoted on Sept. 20 at $24 to $24.15, other grades correspondingly high. The market is brisk.

DETERMINATION OF CITRAL IN LEMON OIL.

The editor of the *Perfumery and Essential Oil Record*, London, in an editorial article reviewing various processes for the determination of citral in lemon oil, published during the last few years, recommends that a 4 per cent. minimum of citral should be required for the new British Pharmacopœia.

That is already the standard in this country, but users of lemon oil are more particularly interested in the analysis of extracts of lemon, particularly the terpeneless variety.

It matters little to what degree of refinement and accuracy any method for citral determination may be carried, so long as it is chemically extremely difficult, if not impossible, to differentiate between citral derived from lemon oil and from that derived from lemongrass oil.

RECENT CHANGES IN FOREIGN TARIFFS.

The initial number of a publication entitled *Foreign Tariff Notes* has just been issued by the Bureau of Manufactures of the Department of Commerce and Labor. The scope of the new publication is a broad one, embracing changes in rates of import and export duty in all the important countries of the world; notice of proposed or pending revisions of foreign tariffs is also given, together with amendments of the customs and consular regulations. The first number covers the changes for the last five months; the separate items it contains have appeared from time to time in the *Daily Consular and Trade Reports* since July, and are now reprinted for greater convenience of reference. A special chapter describes the regulations governing the admission of automobiles in several countries. Future issues of *Foreign Tariff Notes* will be published as often as the number of items requires.

ANOTHER TARIFF TANGLE.

The subjoined decision of Board 3, of the United States General Appraisers, New York, rendered December 5, 1910, has thrown the talc importers into a turmoil which may be expected to communicate itself very shortly to manufacturers of talcum powder.

General Appraiser Hay has performed a negative service to the trade by lifting the protesting importers from an uncomfortable frying pan and dropping them into the fire. However, no situation is irremediable, though the remedy may be costly. Miners of domestic talc will enjoy visions of more automobiles, tempered by the prospect of competition by those who may decide to import crude Italian talc (duty free) and grind it here.

A contemporary journal affects to be in a quandary as to the intent of the General Appraisers, but we think the intention is very plain that ground talc shall pay a duty of $20 per ton.

This decision will be of value to domestic manufacturers of the cheaper grades of talcum, and it may even become possible for importers of European perfumery more profitably to sell perfumed talc of foreign manufacture, in fancy packages.

The decision is as follows:

(T. D. 31088—G. A. 7128.)
Ground talc—French chalk.

1. "Articles and Wares."
   Paragraph 95, tariff act of 1909, provides only for articles and wares composed wholly or in chief value of earthy or mineral substances, and not for earthy or mineral substances themselves.
2. Ground Talc—French Chalk.
   Ground talc, established by testimony to be the same as French chalk, is dutiable, either directly or by similitude, under paragraph 13, tariff act of 1909; hence paragraph 480 (unenumerated articles), which may be invoked only as a last resort, is not applicable to this commodity.

United States General Appraisers, New York, December 5, 1910.

In the matter of protests 398390, etc., of L. A. Salomon & Bro. et al., against the assessment of duty by the collector of customs at the port of New York.

Before Board 3 (Waite, Somerville, and Hay, General Appraisers.)

Hay, *General Appraiser.* The question presented in this case is under what paragraph of the tariff law of 1909 ground talc should be classified. It was assessed for duty by the collector under paragraph 95. Many contentions are made by the importers in the various protests here under consideration, but the only one relied upon at the trial and in the argument of the case is that the merchandise should be assessed as a nonenumerated manufactured article under the provisions of paragraph 480.

Paragraph 95 provides only for "articles and wares," and then, as if to confine the meaning of these words to their ordinary use, it provides that such articles and wares shall be "composed of," etc., clearly indicating that the commodities intended to be covered by this paragraph are only such as are made from the substances indicated therein, and not the substances themselves. There is no authority, either in the language of the paragraph or the decisions of this Board, to warrant the classification made by the collector, and the government counsel in presenting their case made no effort to sustain the collector's action, but contend that the protests should be overruled for the reason that the merchandise in question is specifically provided for in the tariff law under paragraph 13, and should be assessed thereunder .

Having determined that the collector's assessment was erroneous, we are called upon to decide whether the commodity in question should be assessed under paragraph 480. Before we may decide that it should be, we must determine that there is no other provision of the law under which duty could be collected, either directly or through the application of the similitude clause of paragraph 481. We are somewhat embarrassed by previous decisions of the identical question presented by these protests made upon more or less incomplete and unsatisfactory records, from which arise some seeming conflict.

In McNear's case, G. A. 5521 (T. D. 24864), ground talc was held to be dutiable under section 6 of the tariff act of 1897.

In Stewart's case, Abstract 14620 (T. D. 27968), sawed pieces of talc were held to be dutiable under section 6.

In Doggett's case, G. A. 6665 (T. D. 28425), irregular pieces of talc used as pencils in marking iron were held to be French chalk and dutiable under paragraph 13.

In Kirschberger's case, Abstract 17628 (T. D. 28597), the protest having been submitted upon the samples without any testimony, it was said that the Board does not exercise expert knowledge, and a

claim under section 6 was sustained upon the report of the Appraiser, following abstract 14620 (supra).

In Kraemer's case, Abstract 21245 (T. D. 29763), crude talc was held to be dutiable as Franch chalk, following G. A. 6665 (supra). This case was appealed to the circuit court and that tribunal sustained the Board, holding the commodity dutiable as French chalk by similitude, Kraemer *v.* United States (180 Fed. Rep., 638; T. D. 30808).

All of these decisions were under the tariff act of 1897. The only change, however, made in paragraph 13 of the act of 1909, which is the only change in the tariff law that affects the question under consideration, was to omit the parenthetical words "not medicinal nor prepared for toilet purposes." This change, if affecting the paragraph at all, so far as the consideration of the question before us is concerned, broadens its scope. In paragraph 13 French chalk is expressly provided for.

In the case at bar a large number of witnesses were examined both by the importers and by the Government, and we think it fair to assume that the issue here presented, so far as it is a question of fact, was exhausted. While the most of the witnesses called by the importers were disclosed, upon examination, to be interested parties, and those called by the Government disinterested merchants familiar with the commodity in question, in the view we take of the testimony, considered as a whole, there is no such conflict in it as makes it necesasry to consider the bias or prejudice of witnesses. We think the testimony fairly establishes that the commodity in question is commercially known as talc, bought and sold as such. We think it further shows that talc, or talcum (which are interchangeable terms), and French chalk are the same thing, and this is borne out, though probably not clearly established, by the authorities.

We therefore conclude that the commodity in this case is either specifically provided for in paragraph 13 of the tariff act of 1909, or is made dutiable under that paragraph by the application of the similtude clause of paragraph 481; hence paragraph 480, which may be invoked only as a last resort in the classification of merchandise, is not applicable to this commodity. We are the more readily led to this conclusion by reason of the fact that the later decisions, G. A. 6665, Abstract 21245, and 180 Fed. Rep., 638, were presumably in the minds of Congress in enacting the new tariff law, wherein no specific provision was made for talc.

The protests are overruled.

No. 24002.—THYMOL.—Protest 408567 of National Aniline and Chemical Company (New York). Opinion by Chamberlain, G. A.

Protest claiming thymol to be dutiable as a non-alcoholic compound sustained.

(T. D. 31048.)

Thymol.

Appeal directed from decision of the Board of United States General Appraisers of September 23, 1910, Abstract 24002 (T. D. 30944), involving the classification of thymol.

TREASURY DEPARTMENT, November 17, 1910.

SIR: The Department is in receipt of your letter of the 15th instant in regard to the decision of the Board of United States General Appraisers of September 23, 1910, Abstract 24002 (T. D. 30944), wherein it is held that certain thymol, which was assessed with duty at the rate of 55 cents per pound under paragraph 3 of the tariff act of 1909 as a compound in the preparation of which alcohol was used, was properly dutiable at the rate of 25 per cent. ad valorem under the same paragraph as a non-alcoholic compound.

In view of the importance of the issue, you are hereby requested to file, in the name of the Secretary of the Treasury, an application with the United States Court of Customs Appeals for a review of the said decision, in accordance with the provisions of subsection 29 of section 28 of the tariff act of August 5, 1909.

Respectfully, A. PIATT ANDREW,
(70260.) *Assistant Secretary.*

MR. D. FRANK LLOYD,
Assistant Attorney-General, New York.

The decision of the Treasury Department to appeal from the opinion of General Appraiser Chamberlain in this case does not seem to affect the practice of the Collector of the Port, who holds thymol to be dutiable at 25 per cent. ad valorem when it is shown by "proper" evidence that alcohol has not been used in the process of manufacture. The Collector regards an unsworn statement made before a United States Consul as being sufficient proof; but the legal officers of the Treasury Department take the technical view that such a statement is not legal evidence, it being unsworn.

Should the United States Court of Customs Appeals coincide with this view importers of thymol will simply have to conform to these legal requirements, as undoubtedly a sworn statement alleging the exclusion of alcohol will be sufficient.

WASHING COMPOUND OR SOAP.

In the complete specification of their British Patent No. 15,246, of 1909, Savril, Ltd., of 95 Brook street, Chester; J. B. Irving, of Balmacneil, Ballinluig, Perthshire; and E. S. Wilson, of 95 Brook street, Chester, claim: (1) A washing compound composed of a mechanical mixture of a fatty acid and an alkaline compound, the latter being of such a nature as to chemically combine with the fatty acid with rapid evolution of free carbon dioxide when used in the presence of water and heat. (2) A washing compound or soap constituted of or comprising a fatty acid, and a carbonate of soda composed of sodium carbonate and sodium bicarbonate. (3) The improved hard washing compound or soap constituted of oleine and sesqui-carbonate of soda.

THE EXAMINATION OF CIVET.

Charabot and Hébert ("Bull. Soc. Chim.," 1910, 687) have made a further examination of four samples of civet, three of which were of known authenticity. The following figures give the results of their analyses:

	I	II	III	IV
Melting point	35°-36°	—	—	—
Insoluble in either alcohol	3.70	4.80	4.50	20.50
Mineral matter	0.70	0.30	0.70	2.00
Total fatty acids	62.5	59.6	63.8	17.2
Melting point of fatty acids	36°-37°	—	—	—
Saponification value	182	109.2	110	81.2

The fourth sample was probably adulterated. The authors consider that no civet should be considered genuine which does not comply with the following requirements: Not more than 6 per cent. should be insoluble in ether-alcohol; at least 50 per cent. of fatty acids should be yielded on saponification; the saponification-value must not be below 100.

THE PRODUCTION OF VOLATILE OILS AND PERFUMERY PLANTS IN THE UNITED STATES.

By FRANK RABAK.
CHEMICAL BIOLOGIST, U. S. DEPARTMENT OF AGRICULTURE.

At the present time the number of plants in the United States yielding volatile oils in a commercial way is very small, but the number capable of yielding oils of probable value is correspondingly great. There is, in fact, a large number of odoriferous plants still uninvestigated which should demand consideration. As yet but little research has been undertaken which would tend to increase the number of valuable aromatic plants now being utilized. A study of this particular phase of the subject, coupled with the introduction of foreign species into the United States, should eventually develop somewhat the resources of the country along this important line.

CULTIVATED PLANTS.

The relatively small number of volatile-oil-yielding plants at present under cultivation and the success of the industry based on these few plants should be sufficient justification for widening the scope of our efforts.

The cultivated plants at the present time are principally the mints, peppermint and spearmint, together with small quantities of such plants as wormwood, tansy, and wormseed.

The distillation of peppermint * and spearmint in the United States dates back to 1816, when the peppermint plant was first cultivated for the production of the oil in New York, followed somewhat later by spearmint. The cultivation gradually spread, until at present the center of the industry is in Michigan, with limited production in Indiana.

The cultivation in New York and Michigan has decreased recently, owing to a slight oversupply, which, however, is probably only temporary. Peppermint and spearmint are possibly more largely distilled in the United States than any other oils at the present time, excluding such plants as grow wild and which produce large quantities of oil, notably the turpentine-yielding pines.

The wormwood plant (*Artemisia absinthium*), although introduced from Europe, has been cultivated to some extent commercially in Wisconsin, Michigan, New York and other North-Central States. The distillation of the oil has been conducted with a certain degree of success, the yield from fresh, flowering herbs being one-third to one-half of 1 per cent. It is, however, questionable whether, in the light of the recent European agitation against wormwood, this plant will continue to be cultivated for its oil to the same extent as in the past.

The herb tansy (*Tanacetum vulgare*) is grown for its oil in a small way in the eastern part of the United States and yields from one-tenth to one-fifth of 1 per cent. of a volatile oil used principally in medicine.

The plant American wormseed (*Chenopodium ambrosioides* L., var. *anthelminticum*) is grown chiefly in Maryland and southward, where the plant is found growing wild. There are produced the seeds, which are valuable commercially, and the volatile oil distilled therefrom, which also possesses the anthelmintic action of the seeds.

Another volatile oil which is produced on a very extensive scale and which has been distilled commercially for more than a century, namely, oil of turpentine, deserves brief mention. The production of turpentine oil is confined principally to the Southern and Gulf States, from Virginia to Florida, regions of extensive pine forests. Turpentine is obtained as an oleoresinous exudation from several varieties of pine trees, chief among which is the long-leaved pine (*Pinus palustris* Miller). Other species, such as *Pinus taeda* L. and *Pinus echinata* Miller, also yield a valuable oleoresin. Unlike most volatile oils, the oil of turpentine is not distilled directly from the plant but results as one of the products of the distillation of the oleoresin obtained from the trees, the other product being the rosin or colophony of commerce. The usefulness and value of oil of turpentine in commerce, both in the arts and in medicine, where it is practically indispensable, require no further comment.

The plants just enumerated represent the principal volatile-oil plants which are cultivated or gathered for oil production in the United States. The distillation of oils from the mint species is a singular instance of an industry of commercial magnitude, while the several other oils which are being distilled from cultivated plants occupy a secondary position in production. The further development of some of the oils mentioned will be controlled largely by the consumption of the products and by the demand which may be created for them.

The experimental work being conducted at the present time at the Arlington Experimental Farm, near Washington, D. C., is such as to demonstrate the practicability of more extensive cultivation of the plants already grown, as well as of other plants growing wild at present, but which by proper methods of domestication can probably be greatly improved both from the standpoint of luxuriance of growth and of fragrance.

The introduction of foreign species of volatile-oil plants and the testing of the same upon native soil are also receiving considerable attention, and the successful production of oil is clearly assured in some cases. Suitable localities, however, must be chosen to conform with the natural habitats of the introduced plants in order to attain the highest degree of efficiency of production.

WILD PLANTS.

Possibly the number of wild aromatic plants which are used in the manufacture of volatile oils exceeds that of those which are at present cultivated. The extent of the production of the oils is much less, chiefly because of the more or less scattered condition of these plants, and therefore the difficulty of gathering them in large quantities. Usually these wild aromatic plants are distributed over wide areas confused largely with other volatile or non-volatile species, thus causing the rapid collection of the plants to be seriously hindered. For this reason, probably, together with lack of interest in the cultivation of the wild plants, the production of their oils has been largely restricted.

*Bulletin 90, pt. 3, Bureau of Plant Industry, U. S. Department of Agriculture.

SASSAFRAS.

A special example of an important uncultivated plant which yields a volatile oil of considerable value is the sassafras tree. Sassafras oil was one of the first volatile oils distilled in America. The range of the tree is from Florida, where it was originally discovered, to Virginia and Pennsylvania, and even as far north as New York and the New England States. It is quite abundant in the South-Central States, especially Kentucky, Tennessee and Arkansas. The production of this oil attained commercial significance early in the last century, and it is distilled extensively at present in Kentucky, Tennessee, Pennsylvania, Maryland and Virginia; also to a less extent in Ohio, Indiana and New York.

Although the distillation of this very fragrant oil, which is obtained principally from the bark of the root of the sassafras tree (*Sassafras officinalis*), has assumed a strong commercial aspect, the tree has not been grown, strictly speaking, for oil purposes. No doubt the great abundance and the ready accessibility of the trees growing wild are the causes of the noncultivation of this tree for commercial purposes. The leaves and branches of the tree are faintly aromatic, but are not used as a source of the oil. The root bark and wood, which contains from 1 to 8 per cent. of volatile oil, form the crude source of supply. The oil is distilled by the ordinary method of steam distillation, the wood and bark of the root being previously coarsely comminuted to admit of better extraction.

WINTERGREEN AND SWEET BIRCH.

The distillation of the oils of wintergreen and sweet birch is a further example of wild aromatic plants furnishing oils in sufficient quantities to supply the trade. Both wintergreen (*Gaultheria procumbens*) and sweet birch (*Betula lenta*) occur largely from the New England States and North-Central States to Georgia, Florida, and Alabama. The distillation of these oils dates back nearly as far as that of the oil of sassafras and has developed until the industry at present is of some significance. Wintergreen and sweet birch are entirely unrelated plants, yet the oils produced from them by distillation are for all practical uses identical. Mention has been made previously of the fact that the oil in these plants is formed by reaction and does not preexist in the tissues. The glucosid gaultherin is the constituent which is responsible for the formation of this oil, and since the reaction between this glucosid and the plant ferment is the same in both plants, the resulting volatile oil (or methyl salicylate) must necessarily be similar.

In the case of the sweet birch, which is a tree of some size, the bark of the trunk and the small branches are used for distillation, being previously cut into small pieces and allowed to macerate with water before introduction into the still. A yield of three-tenths to three-fifths of 1 per cent. of oil is obtained. On the other hand, for the separation of the oil of wintergreen the leaves and twigs are used, the plant being more or less shrubby. The same treatment is applied to wintergreen as to sweet birch, maceration in water being allowed to continue for a period of several hours prior to distillation. The yield of volatile oil from wintergreen varies from one-half to 1 per cent. Owing to the abundance of these plants their cultivation especially for the volatile oil has not been attempted, the material being collected from the plants as they grow in their native habitats. The strict enforcement of the Food and Drugs Act has tended to curtail largely the use of the synthetic oil (methyl salicylate) for certain purposes where the natural oil is required. A more active demand for the natural oils of sweet birch and wintergreen has necessarily resulted, the price of these oils being thereby materially advanced.

CANADA FLEABANE.

Several other plants capable of yielding volatile oils of some value are at present distilled in the United States. A very common herb growing abundantly in the North-Central and Western States, the Canada fleabane (*Erigeron canadensis*), usually regarded as a weed and known to Westerners as the fireweed (not the true fireweed, however), is distilled in a small way in connection with the distillation of peppermint. The plant, which is a hardy annual, is not cultivated, but is cut in the wild condition, no special care being taken to eliminate other aromatic weeds or plants, and consequently there results an oil which, although representing the oil of erigeron, is far below the true standard of the oil, owing to the presence of extraneous plant matter introduced during distillation.

EUCALYPTUS.

The production of eucalyptus oil from the leaves and twigs of the blue-gum tree (*Eucalyptus globulus*) is of considerable importance in the volatile-oil industry of the United States. The commercial production of this oil is confined almost exclusively to the State of California, where the tree grows abundantly. The tree is not cultivated as a source of volatile oil, but is extensively grown for ornamental, fuel, and timber purposes. The leaves and twigs are collected from the waste branches or brush resulting when the trees are cut for timber or wood and used for the purpose of distillation. The material selected for distillation may be coarsely comminuted and the essential oil readily obtained therefrom by the usual method of steam distillation.

The yield of oil varies from three-tenths to four-fifths of 1 per cent., according to the quantity of woody branches and twigs introduced into the still with the leaves, the latter producing the highest yield of oil. The use of this oil is very general, and it is employed chiefly as a therapeutic agent. From 70 to 90 per cent. of the oil consists of eucalyptol or cineol, the chief constituent and the one to which its valuable antiseptic properties are due.

The waste leaves and branches accumulating when the trees are cut for lumber or wood are not fully utilized. At points where a considerable number of trees are being felled a distilling apparatus could under favorable circumstances be profitably installed and successfully operated at a very moderate expense. It has been estimated that two tons of leaves and twigs will produce from three to four gallons of oil at a cost of about $3 a gallon for distilling the oil.*

MONARDAS.

Two additional plants possessing volatile oils of antiseptic value and growing wild in the whole north-central portion of the United States, from Pennsylvania to Minnesota, are wild bergamot (*Monarda fistulosa*) and horsemint (*Monarda punctata*), belonging to the Labiate tribe. These plants yield oils rich in antiseptic constituents, the former producing an oil consisting chiefly of the liquid phenol carvacrol, while the oil from the latter consists for

*Bulletin 196, California Agricultural Experiment Station, p. 34.

the most part of the crystalline phenol thymol. Both of these constituents are isomeric in character and of equal value as antiseptics, the extensive use of thymol for medicinal purposes being familiar to most people.

Wild bergamot and horsemint, owing to their hardiness, are capable of profitable cultivation in the North-Central States, where the climatic conditions seem to be especially suitable for their growth and for the production of oil. The whole fresh plant during its flowering condition is generally distilled, the amount of oil obtained being influenced by conditions of growth and culture, but averaging from three-tenths to 1 per cent. or more. The perennial nature of the plants enables the grower to produce them from year to year with a minimum of labor on somewhat sandy, dry soil which possibly has no great value for the production of other crops.

PENNYROYAL.

Pennyroyal is a small annual herb characteristic of the east-central portion of the United States. It is distilled for its oil principally in Ohio and North Carolina, with smaller operations in intermediate States. The pennyroyal plant (*Hedeoma pulegoides*) is native to the United States, is readily propagated and grown, and yields a volatile oil which finds extensive application in therapeutics. The yield of oil distilled from the fresh flowering herb varies from three-fifths to 1 per cent.

MISCELLANEOUS AROMATIC PLANTS CAPABLE OF CULTIVATION.

The foregoing instances represent typical cases of wild plants indigenous to the United States and capable of yielding volatile oils, some of which are distilled on a quasi-commercial basis while others are not grown or distilled at all.

Hosts of other wild aromatic plants are found growing in all sections of the country, many possessing exceedingly fine fragrance and many, on the other hand, possessing odors less attractive but nevertheless possibly of value. These odorous plants will in most cases produce volatile oils which may contain constituents of value, not only in the perfumery trade but also in the arts and medicine. A systematic canvass of the flora of the United States, with special attention to those plants which possess an aroma, and a trial distillation of the same, followed by a careful, detailed chemical examination of the oils, will no doubt bring to light new oils, the value of which may be determined from the nature of the constituents identified in them. Several new volatile oils have been distilled within the past year which have been shown by chemical analysis to contain highly valuable constituents. The results of these experiments, which have proved very gratifying, will be published in the near future, and the significance of the exploration in this field of research will be clearly indicated. Practically no progress has been made in this direction within the last few decades. The necessity of these investigations is therefore strongly recommended.

Various other plants deserving mention, besides those already cultivated and those growing wild which possess volatile products of value to the perfumer and confectioner, are the rose, lavender, rose geranium, rosemary, thyme, sweet basil, summer savory, and sweet marjoram, and the umbelliferous seeds (caraway, anise, fennel, and coriander), besides the citrus fruits lemon and orange. The plants of the first general class, though not native to this country, have been introduced and grown as garden plants, luxuriant growth and excellent aromas usually being obtained.

The umbelliferous plants mentioned have also been largely grown, although only on a garden scale, usually for their seeds, which possess considerable value to the housewife and to the confectioner for flavoring or condimental purposes. The distillation of the oils from these seeds has been very largely for experimental purposes only.

The citrus fruits, although grown very extensively, have received but slight attention in the United States from the standpoint of their volatile oils, which are of so much value to the scenter and perfumer.

The rose, lavender, and rose geranium, although possessing exceedingly fragrant volatile oils, have received only trifling consideration as regards cultivation for the aroma.

It is not unlikely that certain sections of the United States are adapted to the growth of the Bulgarian rose, which produces the rose oil of commerce. In order to locate these desirable regions, practical tests would be required, attention being paid to the quality of the perfume obtained and also to the labor required in the gathering of the rose petals. Besides the usual variety of rose used for perfume cultivation, the *Rosa damascena*, there are a number of other species which have become naturalized in this country and which possess fragrance of exceedingly high quality, besides being prolific bearers.

Experiments in connection with the growing of roses for perfumery purposes are worthy of attention in some of the southern portions of the United States where the conditions of climate are especially favorable and where, since the petals must be plucked by hand for distillation, labor would be sufficiently cheap to insure a certain degree of success.

Lavender (*Lavandula vera*), now grown extensively in the semi-mountainous districts of France and in England for the volatile oil, is no less capable of growth on the soils of this country than other plants which are at present grown profitably. The regions of growth in France, Italy, and England are not entirely dissimilar and do not possess any more suitable climatic and soil conditions than might be supplied in some sections of the United States. In this case experiments would also be necessary to locate desirable regions, but the labor factor would be minimized considerably owing to the fact that the entire tops of the plants are distilled. Owing to the little labor required in connection with lavender, enterprise in this matter should not be lacking.

The rose geranium (*Pelargonium odoratissimum*), a plant with an exquisite odor grown and distilled in France, Spain, Algiers, and the island of Reunion, deserves some consideration with regard to cultivation, inasmuch as the oil distilled from the plant is of such a nature as to make it almost indispensable in the perfumery industry. Unlike that of lavender, the odor of the rose geranium resides in the leaves, the flowers being almost odorless. Experiments in a preliminary way are now being carried on to determine the quality of the oil capable of being distilled from this plant. As in the case of the rose and lavender, the most suitable location can be learned only by a system of tests in localities with different climatic and soil conditions.

Rosemary (*Rosmarinus officinalis*), thyme (*Thymus vulgaris*), sweet basil (*Ocimum basilicum*), summer savory (*Satureja hortensis*), and sweet marjoram (*Origanum marjorana*), besides others of this type originating in Med-

iterranean countries and yielding oils of excellent fragrance for both the perfumers and the toilet-preparation manufacturers, can by proper attention and perseverance no doubt be produced advantageously. A factor of considerable import in the growth and distillation of these plants is that whole fresh herbs can be distilled, thus obviating the necessity of picking the flowers by hand.

The distillation of oil from such seeds as caraway, anise, fennel, and coriander, which are so universally used for flavoring and scenting purposes, has been successfully exploited in southern Europe for decades. These seeds have been introduced into the United States and grown in small quantities, principally for household use. The ease of production as a household necessity should be sufficient stimulus for growing the plants on a broader basis for the distillation of the very fragrant oils. The North-Central States, with their excellent soil and climate, undoubtedly are capable of producing profitable yields of seeds giving from 2 to 7 per cent. of volatile oil. The method of distillation is similar to that of leaves or herbs, with the exception that, in order to facilitate the permeation of the steam, the seeds are ground coarsely before being subjected to the steam vapors.

The commercial isolation of oils from citrus fruits and their by-products centers principally in Sicily and Italy. The production of oil from either lemon or orange peel in the citrus regions of California has received but slight attention and should be deserving of more, inasmuch as the demand for these oils is very constant and the prices reasonably high. The distillation of waste lemons or unsalable lemons would possibly yield a volatile oil of lemon of fair quality, which no doubt would find a ready market. The Sicilian methods of hand expression are practically out of the question because of the labor factor involved. The distillation of lemon-tree prunings yields an oil of extremely high citral content, which should prove valuable for flavoring purposes.

COMMERCIAL ASPECT OF THE INDUSTRY.

VALUE AND CONSUMPTION OF VOLATILE OILS.

Mention has already been made of the value in general of volatile oils as industrial products, which commercially have not been manufactured in the United States to any extent, the mint oils being singular exceptions. Lack of interest in the growth and development of perfumery plants is principally responsible for the inactive condition now existing in this important phase of industrial enterprise. Possibly a lack of experience with regard to the growth of the plants concerned and the methods necessary for success has been largely instrumental in preventing the upbuilding of this branch of industry.

It must be conceded that very large quantities of volatile oils are at present consumed in the United States in the several uses to which they are applied. In the manufacture of perfumes the role played by volatile oils is all-important. A large proportion of the amounts consumed enters the channels of the perfumery trade. Usually perfumes consist of blends of odors brought about by a skillful combining of several oils in varying proportions through a medium capable of holding in solution these oils and odoriferous ingredients. The manufacture of perfumes has shown but little development in the New World. Perfumery products are largely imported in the prepared condition, chiefly from France, where the skillful art of compounding has been scientifically developed.

The use of volatile oils in flavoring and in the manufacture of flavoring extracts is very extensive, but it is restricted to a comparatively small number of oils, principal among which are lemon, orange, wintergreen, peppermint and others of this type.

For scenting purposes, such as aromatizing soaps and toilet preparations in general, volatile oils have been employed very extensively in the United States. Their use in this line of application has increased with the increase in the manufacture of these much-demanded articles.

On the other hand, the medicinal value of certain oils and of certain constituents which can be isolated from them has created a demand which in part has been supplied by home production and in part by foreign production. The separation of important therapeutic ingredients, chiefly antiseptics, has been highly serviceable in the treatment of many ailments, a striking instance of this kind being the separation of camphor from the oil of camphor, this ingredient playing an important role in medicine as well as in the arts. Other oils deserving mention in this connection are those of eucalyptus and thyme, the former yielding the valuable eucalyptol and the latter thymol. Another example is peppermint oil, from which menthol is isolated. All of these constituents possess therapeutic value of no little importance.

In order that the grower may become acquainted with the approximate value of volatile oils on the American market, the following tabulation of prices has been prepared. The perfumery articles listed include the principal volatile oils which enter the markets of the United States for consumption, the prices being current wholesale quotations in effect in January, 1910. Prices are per pound unless otherwise stated.

Wholesale prices of various volatile oils in the markets of the United States, January, 1910.

Almond, bitter	$3.25	to	$4.75
Anise	1.10	to	1.12½
Bay	1.90	to	2.00
Bergamot	3.75	to	4.00
Cade	.16	to	.20
Cajeput	.52½	to	.55
Camphor	.09	to	.10
Caraway seed	1.15	to	1.25
Cedar, leaf	.42½	to	.45
Cedar, wood	.16	to	.17
Cinnamon	6.50	to	12.00
Citronella	.25	to	.28
Cloves	.70	to	.72½
Copaiba	1.00	to	1.10
Coriander	5.00	to	6.00
Cubeb	3.00	to	3.25
Erigeron	1.50	to	1.60
Eucalyptus, American	.35	to	.60
Fennel seed	1.10	to	1.30
Geranium, rose, African	3.50	to	4.00
Geranium, rose, Turkish	2.25	to	2.50
Ginger	4.00	to	4.50
Ginger grass	1.10	to	1.35
Hemlock	.45	to	.50
Juniper, berries	.80	to	1.00
Juniper, wood	.23	to	.25
Lavender, flowers	1.85	to	2.25
Lavender, spike	.60	to	1.10
Lemon	.77½	to	.85
Lemon grass	.80	to	.85
Lime, expressed	1.75	to	2.00

Lime, distilled	.55	to	.60
Linaloe	2.80	to	2.85
Mace	.70	to	.75
Male fern	1.90	to	2.20
Mustard	3.00	to	4.00
Neroli, petals	50.00	to	75.00
Neroli, bigard	35.00	to	50.00
Nutmeg	.70	to	.80
Orange, bitter	2.25	to	2.35
Orange, sweet	2.20	to	2.40
Origanum	.20	to	.40
Patchouli	4.00	to	4.25
Pennyroyal	1.70	to	1.80
Pennyroyal, French	1.40	to	1.50
Peppermint, tins	2.00	to	2.10
Peppermint, bottles	2.30	to	2.35
Petit grain, French	5.00	to	6.00
Petit grain, South American	2.40	to	2.75
Pimento	1.90	to	2.25
Rose, natural, per oz	5.00	to	5.50
Rosemary flowers	.67½	to	.75
Safrol			.40
Sandalwood	3.00	to	3.25
Sassafras	.55	to	.65
Savine	1.25	to	1.30
Spearmint	1.75	to	1.85
Spruce	.40	to	.45
Tansy	2.50	to	2.75
Thyme	1.00	to	1.10
Wintergreen (or sweet birch)	1.45	to	1.75
Wintergreen, leaf	3.25	to	4.25
Wormseed	1.50	to	1.60
Wormwood	6.25	to	6.50
Ylang-ylang	47.00	to	65.00

IMPORTS AND EXPORTS OF VOLATILE OILS.

Importations of volatile oils and allied products have increased from year to year until at the present time the expenditures for volatile oils and perfumes aggregate more than $2,000,000 annually.

According to the statistics of imports compiled by the Bureau of Statistics of the Department of Commerce and Labor, the importation of volatile and distilled oils, free and dutiable, for the year ending June 30, 1908, amounted to $3,619,161.33.* From this amount there should be deducted $886,923, which represents distilled oils not of plant origin. The total importation, therefore, of volatile oils, free and dutiable, distilled from plants for the above year was valued at $2,732,238.33. These figures represent only the volatile oils imported.

In addition to the sum mentioned, the imports of alcoholic perfumery, including toilet and cologne waters and alcoholic handkerchief perfumes, must be considered. The total imports of this class of perfumes for the year ending June 30, 1908, amounted to $484,498.43.*

The value of toilet preparations, such as cosmetics, hair washes, dentrifices, pomades, and powders, into which perfumery substances enter may also be mentioned in this connection. The imports of these preparations for the above year reached a total of $604,258.09.§

For purposes of comparison and to illustrate the remarkable increase of consumption of volatile oils of foreign production, the statistics extending over several years are tabulated.†

The steady increase in the importation of perfumery products, as shown in Tables III and IV, indicates that the consumption of volatile oils and scenting materials in America is also increasing. With the exception of peppermint, comparatively small quantities of crude oils are distilled and exported from the United States. The exports of peppermint oil, distilled largely in New York and Michigan, for the year ending June 30, 1908, were 141,617 pounds, valued at $357,555,‡ while all other essential oils exported amounted to $214,765.

The imports of volatile oils and perfumery materials far exceed the exports of the same products, the principal product of export being peppermint oil, a singular case where the distillation approaches industrial size in the United States.

The total yearly outlay for the crude materials, and also for the finished products, is sufficient to attract attention and is deserving of concerted action on the part of growers and others who might profitably engage in this neglected field of research and practice.

PRESENT SOURCES AND COST OF PRODUCTION OF VOLATILE OILS.

The present source of these commercial products, which may be gleaned from the tabulation, is Europe, from whence they are imported both in the crude state and in the manufactured condition. Italy possibly furnishes the smallest quota of volatile oils and the largest valuation, the products being chiefly the citrus oils, supplied solely by Sicily and Italy and consumed to a great extent in the United States. From France the large proportion of perfumery extracts and finer essential oils is imported,

*Commerce and Navigation of the United States, 1908, p. 917.
§Commerce and Navigation of the United States, 1908, p. 919.
†Commerce and Navigation of the United States, 1908, p. 279.
‡Commerce and Navigation of the United States, 1908, p. 636.

TABLE III.—*Imports of volatile and distilled oils for the years ending June 30, 1903 to 1908, inclusive.*

Free imports from—	1903.	1904.	1905.	1906.	1907.	1908.
Europe	$1,253,360	$1,318,606	$1,387,268	$1,617,796	$2,227,530	$2,215,265
North America	2,747	1,315	16,389	5,713	2,431	5,996
South America	2,364	4,052	2,205	750	4,969	14,886
Asia	191,730	252,729	176,563	308,781	407,008	314,688
Oceania	129	.....	.....	.....	.....	.....
Africa	.....	290	24	.....	304	.....
	$1,450,330	$1,576,992	$1,582,449	$1,933,040	$2,642,242	$2,550,835

TABLE IV.—*Imports of volatile and distilled oils for the years ending June 30, 1903 to 1908, inclusive.*

Dutiable imports from—	1903.	1904.	1905.	1906.	1907.	1908.
Europe	$590,493	$745,013	$865,008	$850,989	$987,919	$1,028,630
North America	14,444	12,210	4,994	12,794	18,879	15,678
South America	.....	.....	.....	15	.....	415
Asia	86,768	41,214	54,296	38,361	32,572	22,441
Oceania	14,296	20,958	24,343	15,529	17,123	19,308
Africa	.....	361	3,003	12,227	3,485	8,134
Total	$706,001	$819,756	$951,644	$929,915	$1,059,978	$1,094,606

while Germany, Turkey, and Great Britain distribute to this country large consignments of crude and purified volatile oils.

The Mediterranean regions of Europe are the chief sources of these aromatics, which are so generally employed in the industries in diverse ways. The cost of production is minimized in these countries because of the cheaper class of labor as compared with labor in America, for instance. In the handling of many flowers and plants, much hand labor is required, especially in the collection of the material prior to distillation. The actual distillation and purification of the oils can be conducted with equal economy in the United States, while in the case of no small number of plants which may be suitably collected and distilled in the whole condition the question of labor becomes a less serious factor, especially in some instances where mowing machines may be employed advantageously to harvest the crops. Where hand picking is required, as in the case of some of the more delicate odors from flowers and flowering tops, cultivation and extraction of the odor could possibly be carried out in the Southern States, which have abundant sunshine, an important prerequsite in odor development. Furthermore, the labor conditions in the Southern States are such that the cost of gathering, which is a serious obstacle, would be comparable to a degree with that in foreign countries.

CONCLUSIONS.

In view of the success which has been achieved in the United States along a number of special lines, the outlook for a very considerable extension of the volatile-oil industry in general seems promising. Favorable conditions of soil and climate seem to be obtainable. With an increased practical knowledge of how to handle the crops of greatest promise and with a working familiarity with the forms of apparatus used in separating the oils, the preliminary steps leading to such an extension will have been taken. Before a full-fledged industry can be expected to appear, however, much preliminary experimental work must be done over a wide area in order to ascertain the most successful combinations of soil, climate, and labor conditions.

From the standpoint of the consumption of products derived from volatile oils obtained from plants, the commercial statistics show a large and active market. They also show that the demand is now supplied in very large part from foreign sources, and an active interest in testing the possibilities of our land is suggested.

VANILLA VINES AND BEANS

EAST AFRICA.

Madagascar, Comoro, Reunion and Seychelles Islands.

Consul Jas. G. Carter, of Tamatave, Madagascar, furnished the following information concerning the vanilla bean in East Africa.

While the production of vanilla beans in Madagascar, the Comoro, Reunion and Seychelles Islands for 1909 season is to be very much less than in 1908, the prices are said to be sufficiently encouraging to bring the export values considerably higher than in 1908.

In Madagascar, the 1909 campaign commenced in full along about the month of October, and will continue until about February 1, 1910. The vanilla is produced on the east coast, Tamatave being the chief shipping point.

On November 1, 1909, Madagascar vanilla brought £30 per kilo ($5.79 per 2.2 pounds). The quantity and value exported during the three years here given were as follows: 1906, 89,170 pounds, $91,819; 1907, 111,799 pounds, $192,401; 1908, 126,027 pounds, $201,436.

The Madagascar bean is cured by a slight boiling and is placed in the sun to dry. Those in the Comoro and Reunion Islands are cured practically in the same manner.

Consul Carter's report was prepared in the United States during leave of absence from his post, and a report from his Vice-Consul at Tamatave, Mr. de Chamoy, devoted mainly to the methods of planting the vanilla vine in Madagascar, which is on file in the Bureau of Manufactures, says that there will be only a slight decrease in the Madagascar crop of 1909 from that of 1908, but that, from the best information, the crop of 1910 will be a record one.

SEYCHELLES ISLANDS.

In the Seychelles Islands the beans are dipped into boiling water and afterwards dried in blankets in houses. The vine flowers in August, September and October, and crops begin in June. The average price of vanilla exported from Mahe, Seychelles, in 1909 was $2 per kilo.

Most of the Seychelles vanilla is exported to France and England, where the Seychelles cancelled postage stamps are more or less sought. It has become a general custom to ship vanilla by parcel-post, and it is said that in this manner the cost of freight and postage is reduced by the sale of the cancelled stamps, which brings more than the original value of the stamps at times.

Each year representatives from European houses come to Madagascar, the Comoro and Reunion Islands to purchase vanilla, and in connection with Madagascar, only the names of curers who are not controlled by these buyers are herewith given. (Lists of curers and shippers of vanilla beans in Madagascar, Comoro, Reunion and Seychelles, transmitted by Consul Carter are on file in the Bureau of Manufactures.)

MADAGASCAR.

1. The vanilla vine (*vanilla planitolia Andrews*) is cultivated in Madagascar, almost exclusively on the East Coast, extending about two miles in the interior. It is grown from Vohemar, in the North, to Fort Dauphin in the extreme South, but the places where the vanilla vine seems to find a favorable climate for its growth are at Antalaha, Sambava, Maroantsetra and Angontey in the North, and Vatomandry and Mananjary in the South.

It has been impossible to secure information about the approximate extent of the vanilla vine in Madagascar, but in the opinion of this office, opinion which is based on the output of the vanilla beans for market, it is believed that about two hundred acres of land is devoted to the cultivation of this orchid.

It must be stated, however, that since last year serious attention has been given to the cultivation of the vanilla vine, principally by the large land owners on the east coast; this is due to the high duty imposed in certain countries, especially France and the United States, on chemical vanilline.

The output of the vanilla vine, as officially given in the customs statistics for the years 1906, 1907 and 1908, were as follows:

1906	89,170 lbs	$91,819
1907	117,799 "	$192,401
1908	126,027 "	$201,436

It will be seen from the above figures that the output of the vanilla vine has been on the increase since 1906; but it is believed that there will be a slight decrease in the production of this article in 1909, on account of the enormous quantity of rain which fell at the beginning of 1909, just when the vanilla vine was in full bloom.

From information received, it appears that the 1910 crop will be a record one.

The vanilla vine is also cultivated in the Comoro Archipelago, but as these islands have only been recently annexed to Madagascar, their output of the vanilla beans has not been included in the customs statistics of Madagascar, and it is not possible to state, even approximately, what has been the output for the last three years.

2. According to information received, it appears that the wild vanilla bean is not marketed in Madagascar; my informer adds that it is of no commerciail value and is even very scarce in this district.

3. There are several methods used in the preparation of vanilla beans for market, but the one most commonly used in Madagascar is the following:

As soon as the beans are ripe, which is easily recognized by their yellow appearance at the end, they are gathered and placed in warm water for from 10 to 15 minutes; they are then removed and the water is allowed to drop by means of ex osure for about twenty-four hours, in the shade, between two ordinary cotton blankets. After that lapse of time they are exposed to the sun's rays from one to two days, between the two blankets, which are placed on a wooden cane frame. The frame itself is placed on planks or on an elevation, made by means of small pieces of wood, but is never to rest on the ground.

When found to be fit for market, the beans are sorted according to length and size, and are packed separately in tin boxes, wrapped with a certain kind of paper. The average weight of a box is 9½ pounds.

On account of the oily odor which it imparts to the vanilla beans, lead or silver paper is no more used in the packings of the vanilla beans.

Some curers use the following method, which is believed has for object the increase in weight of the beans:

The beans are rolled in a blanket and placed in an empty petroleum can; in its turn, the can is placed in boiling water for about twenty-four hours, after which time the above process is carried on.

It is thought that, though there might be an increase in weight by means of the second process, the aroma of the beans keeps itself for a much less time.

4. The following methods are employed in the planting of the vanilla vine:

(a) The creepers, one to two meters long, are planted at the foot of trees in the forests; they are allowed to twist around the trunk of the tree and are not allowed to grow higher than six feet, on account of the fecundation of the flowers.

(b) The creepers are planted in open fields, in rows, at a distance of about two yards from each other and each tree is allowed to rest on a prop, distant about one yard from each other. The creepers or trees twist themselves around these props, which afford them a natural shelter, because, if not protected from the sun's rays they will soon turn yellow and fall into decay.

These props are ordinarily the "bois chandelle" (candle wood) and the "pignen d' Inde," which are common and grow abundantly in Madagascar; from the seeds of the latter a good quality of oil is made, which is highly appreciated in certain industrial enterprises.

(c) In marshy or damp places, the second process of planting is followed, but the ground must be leveled about one foot in order that the roots may not decay.

If creepers of two meters long are planted, the harvest may be made in one year's time, but it generally happens that at the end of the first year the flowers are allowed to decay, in order that the vine may be more productive in the second year.

It might be added that the creepers or trees are never allowed to twist around the trees which throw off their bark, such as the eucalyptus, cinnamon, etc., for the good reason that the creepers require these barks to feed themselves upon, manure being never employed.

The beans are generally gathered after maturity; the gathering takes place in the beginning of the month of August and lasts to the middle of October.

HONDURAS.

METHODS OF PREPARING THE WILD BEAN FOR MARKET.

In transmitting the following report Consul Samuel McClintock, of Tegucigalpa, says that the wild vanilla plant grows abundanttly throughout Honduras, but is not cultivated.

The vanilla plant is found chiefly in the mountains in the northern or eastern part of Honduras. Here the rainfall is most abundant, and other conditions for its growth most favorable. The plant flourishes from sea-level to an altitude of at least 3,000 feet. It is found wherever there are trees in abundance to which it can attach itself, but most frequently along the ravines, on the banks of rivers, and in general in places of considerable moisture.

The vine frequently attains a length of 30 feet. The leaves are elongated, flat and slightly grooved. Its fruit is nearly cylindrical, often five or six inches in length, and nearly an inch in diameter. Its odor is balsamic, penetrating and agreeable.

It is said that only one distinct variety of vanilla grows here. The vine flowers but once a year, December to January; the pods ripen between September and November.

MARKETING THE WILD VANILLA.

The vanilla of Honduras is said to be of an excellent kind. It sells locally at from 1½ to 5 cents per pod.

As it is found only wild here, it is generally gathered while still green, so as to forestall others. Almost no use is made of it locally as a flavoring extract, but the pod is stuck in the tobacco, rum, or whatever else it is desired to flavor. As it is not exported and its domestic use is very limited, it is evident that the quantity gathered is very small. It is impossible to say how much is obtained each year or what its total value is.

PREPARING THE BEAN FOR MARKET.

The pods are gathered when green and placed in the sun for a number of days until they are pretty well dry. Then they are rubbed with oil, placed in the sun again, and used as desired, the essence not being extracted. It is not customary here to dip them in hot water and wrap them in flannel, thus producing a good sweat. Failure to so do may account for the lack of abundant aroma of the local product.

No planting or cultivating of the vine whatever is done at the present time, but it is evident that the natural conditions are most favorable here for its propagation. Its exportation is free of duty and the greatest obstacle that one would have to contend with is the lack of transportation.

The best results are said to be obtained from the following methods:

The pods are gathered when they are just ripe, neither too early nor too late, for if gathered green they dry imperfectly, become wrinkled, mold, and even decay. The pods are cut from the vine without being mutiliated and, after two or three days when the moisture is evaporating, are exposed to the sun to dry. When they begin to take on a coffee color they are withdrawn from the sun, for if they ripen too quickly they burst open and in this condition are difficult to keep.

The pods are now placed upon straw mats and carried to a room or shed where they are spread out in such a manner that they will not touch each other. They are next wrapped in flannel and allowed to take on a slight mold. They are dried again and rubbed daily with a perfumed oil. This process is supposed to give a quality and whiteness to the product. It is repeated until the pods acquire a dark brown color and the mass has the agreeable odor of its essence. The object of rubbing the pods with the oil is to better preserve the aroma and to cause, when exposed to the sun, a kind of fermentation to set up.

The pods may now be wrapped in impervious paper or may be put through a process of boiling in water containing a mixture of alcohol, and in this manner the essence extracted. This is not done here, however. If the pods have been well prepared they take on a dark brown color, are flexible, regular in length and without wrinkles; the odor is then sweet and penetrating.

FACE POWDERS

By G. L. MAZUYER.

History—Mythology tells us that in the Age of Fable the nymphs of ancient Greece constantly busied themselves in devising and seeking after new methods of beautifying their persons, and beyond doubt the idea of toilet powders descends from them. The use of these is assuredly of very ancient origin. Herodotus notes that the Scythian (ancient Roumanian) women covered their bodies with powdered aromatic wood (Melpomene, Book IV., 71-75), he further states that among the Arabs it is customary to rub the body with gypsum, but he does not state the reasons for this practice (Melpomene, Book VII., 69).

In Rome and Greece the use of powders seems to have started with the courtesans, and, without doubt, their gross abuse of the practice gave being to the cutting epigram of Martial:

Iuam cretata timet Fabulla nimbum, Cerussata tinet Sabella solem (Fabulla, whose face is covered with chalk, dreads the rain; Sabella, whose complexion is painted with white lead, dreads the sun.)

Ovid, author of the "Art of Love," was less rigorous, and extolled the talent of hiding the defects of imperfect beauty, and it is regrettable that only fragmentary portions remain of his "Medicamina Faceii," the whole of which would have been singularly enlightening to us as regards these matters.

Without doubt the Roman matrons did not long remain callous to the fashion of powdering the face, and it is not improbable that the ancestor of the modern powder box is among the many scent boxes exhumed in the more or less recent excavations of ancient ruins.

During the Middle Ages, the art of cosmetics did not flourish, and nothing of interest arose which is within the confines of our subject. The transmutation of metals kept the alchemists occupied, and there is not much information extant as to the odd preparations made by them.

It was only at the end of the sixteenth century, with the spread of printing that special treatises made their appearance in the great intellectual centres of Amsterdam, Paris, Lyons, Cologne and Venice; most of these cloaked in poor Latin were adaptations of mediaeval receipts, to which extraordinary properties were attributed. The empiricism of all of these were disguised with mystery in order to render the same more authoritative.

We quote the electuary attributed to Bertapolia, "which cleanses the pores of the face, smooths out wrinkles and makes the complexion clear," composed of turpentine, frankincense, duck-fat, mastic, euphorbia and silver filings —it is necessary to distill this very carefully. A judicious note was, however, already evident, witness the curious *Huyle de Talque por Defaellance* cited by different authors (notably by Jean Lieboult on Adornment, pp. 107 and 113, Edition of 1582), which was accorded the premier rank among cosmetics destined to modify the complexion.

Although from the Sixteenth Century there has descended innumerable formulas "to make the complexion soft, vivid and ruddy," they did not seem to hit upon the idea of the face powder as we know it today, and it was only at the middle of the Seventeenth Century that the art of making agreeably scented powders began to flourish; this rapidly became one of the principal branches of the perfumery business, due to the habit of powdering which was general among the better class of people. Poudre a la Maréchale dates from this epoch, being thus named after Madame la Marechal d'Aumont, for whom it was first made.

The Church, when the use of powders became general, was not slow in disapproving of this new practice, and launched several anathemas against it, but the custom had taken hold, and, like other petty vices of fashion, remained in vogue.

Since then and to the present the preparation of powders has made increasing progress, the perfumer has worked, not alone to establish rational formulas, but to give new and harmonious odors to his powders. This practice of powdering, reserved of yore for the nobility, little by little found its way among all classes of society; today every young woman uses powder—knows how to use it—and is not any less charming because of it.

Value of Powders.—The care which women have always bestowed on the correction of natural imperfections of their complexion, needs no excuse. It is well recognized that only a proper mode of living will give that ruddiness of which health is the secret. Dioscoride proscribed, to that end, the alimentary spices of his contemporaries, recommending a diet of figs, as giving brilliancy to the complexion.

At all events the proper use of powder is beneficial, it lightly covers and unifies a complexion, hiding the ravages of time, improving even the beautiful face.

Finally there is no legitimate reason against the use of face powder, and the pharmacopeias prescribe them in the treatment of many skin affections. They are of benefit in acné, freckles, sunburn and red nose.

Beneath their attractive aspect and odor, face powders should be made by the perfumer to combine the qualities of an elegant cosmetic and therapeutic agent; they must primarily possess adherence, lightness and be transparent; secondly, they should be detergent and delicately absorbent in order to aid the natural functions of the skin, taking up the fatty matters not easily dislodged by water; they should also tend to increase the natural elasticity and regular functions of the skin.

Extreme tenuity is one absolute prerequisite so that these effects may follow.

Nature and Composition.—The appellation of rice powder, which is still often given to face powders, has almost always been an error, for the reason that rice starch does not alone constitute the only base, but in the majority of cases for a long while it has been totally replaced by wheat starch.

The materials which enter in a general way in the composition of face powders are of diverse nature, and all substances which possess in themselves the requisite qualities, without any serious disadvantages, merit the attention of the manufacturer. Innumerable white powders have been tried, but we limit ourselves to the consideration of those most commonly used.

Starches and Flours.—These, together with orris, are the only materials of vegetable origin used in the compounding of face powders. The number of these in general use is becoming more and more restricted as their relative faults become better known. The starches have a specific gravity of about 1.530, the flours of 1.5. Potato flour has the coarsest texture, heavy, impure, never perfectly white, and, in our opinion, should never be used. Arrowroot and the English flours obtained from sago and the various colonial varieties, are whiter and softer to the touch, but their lack of stability does not permit of their widespread use, though they are considered in the pharmacopeias as excellent cosmetics for the skin. Starch from wheat and other cereals —rice, corn, etc.—is the whitest of all the most unctuous, crumbles easily under the hand, is very transparent, but no more adherent than other varieties of starch. It imparts, however, great softness to powders, and its transparency is a most important quality; in common with all other starches and flours, it possesses the grave fault of being hygroscopic, and has the power of absorbing a large proportion of moisture—as much as 35 per cent. of its weight —in this condition it is more dense, tends to turn yellow and lose stability, becoming filled with the germs of fermentation, which attack it even when mixed with powders of mineral origin.

When a starch becomes damp it should first be thoroughly moistened and then dried in a hot air bath. A genuine starch can be heated to 80 degs. for three hours without loss of more than 15 to 20 per cent. in weight.

Starches and flours are occasionally adulterated with mineral salts, which can easily be detected by incineration. Carbonates will also show an effervescence with acids.

(To be continued.)

COLLOID CHEMISTRY OF SOAPS.

By J. LEIMDORFER.

(Continued from November issue.)

The emulsoids, those colloids consisting of at least two fluid phases, are characterized by the following properties:

(1) Foam-forming. If emulsoids are mingled with gases by shaking, they have the power of giving a more or less permanent foam (soap bubbles).

(2) Under many circumstances they display opalescence, in that they appear vari-colored when reflecting or transmitting light.

(3) Under the ultra-microscope the emulsoids deport themselves variously. Many show but a diffused illumination, others again show measurable particles. One and the same emulsoid in proportion to its dilution, or in case of hot solutions, in proportion to the time of cooling, can change the size of its particles materially.

(4) Coagulation. The emulsoids are much more sensitive to the action of coagulants than are the suspensoids. Adding coagulants to an emulsoid we find that coagulation can take place in two different ways: either flocks or clots are formed, which swim in or on the solvent (dispersion medium); or there are formed two fluid strata, separate from each other, each coherent in itself but entirely fluid.

(5) A very characteristic property of the emulsoids is their power of greatly influencing the viscosity. While the viscosity of true solutions increases and decreases in direct ratio with the concentration, without any exception whatsoever, emulsoids display the property of causing the viscosity to change in a wholly irregular manner. By the same means the viscosity can be caused to increase or decrease.

(6) Emulsoids show electric properties in small measure or not at all.

(7) The emulsoids show, further, the properties of gelatinizing and liquifying (swelling).

Under gelatinizing we understand that temperature interval during which a colloid solution passes from the fluid to the doughy, jelly-like state.

Colloids as well as emulsoids show no exact point of congelation, but go from the fluid to the gelatinous state either through increase in the concentration or change in temperature. Many have the power of passing beyond this state and by great increase of viscosity virtually reach the condition of solid bodies. This increase in viscosity with change in temperature can occur with increase of the temperature, which is contrary to the temperature-viscosity relation of a true solution.

The property of liquification (swelling) is diametric to that of gelatinizing. Given a thickened emulsoid—perhaps a hard glue—or mixing the same with a solvent—water—gelatines of entirely differing viscosities can be obtained, according to the amount of water mixed in and the time elapsing, until finally, with the proper admixture of solvent during a corresponding time interval, or by heating, the gelatine becomes quite fluid in condition.

Every emulsoid which liquifies must also gelatinize, the converse of which is also true.

In these concise characteristics the principal peculiarities of colloidal solutions have been established, and it is now to be determined in which class of colloid solutions the soaps find a place.

The subject of the colloid-chemistry of soaps is as yet an almost uninvestigated field, very few scientists having entered upon it up to the present writing. Very dilute soap-solutions have been investigated by Kraffts, Smits, and Schreiner, but concentrated solutions have not. Smits' investigations on dilute soap solutions are most thorough, being conclusive on the effect of the same on the vapor tension and boiling-point of dispersing material.

A water sodium-polmitate admixture shows the following changes:*

Concentration in Moles.	Rise of Boiling Point.	Concentration in Moles.	Lowering of Vapor Tension.
0.0282	0.024° C.	0.50	1.3 mm. Hg. at 0°
0.1128	0.045° C.	0.75	0.5
0.2941	0.050° C.	1.00	1.00
0.5721	0.060° C.		

Very dilute soap-solutions are of the approximate character of true solutions. From this point the increase in boiling-point and vapor-tension values ceases and is independent of the concentration of the fatty acid salt, which is the dispersed phase.

*See Ostwald, "Grundriss der Colloid Chemie," page 173.

These properties of soaps, of affecting in a direct relation the boiling-point of water, leaving the vapor tension unchanged, indicate the colloidal nature of concentrated soap solutions. If now we precipitate soap solutions with electrolytes, both the above-mentioned values will increase, or at any rate change in direct relation to the amount of electrolyte added, without any reference to the dispersed colloidal phase.

Soap solutions, shaken with a gas, yield the well-known large amount of relatively durable foam.

Their conduct under the ultra-microscope is entirely in line with the theoretical conditions established. Very dilute soap solutions display, under the ultra-microscope, diffused illumination of the field, whilst concentrated soap solutions exhibit luminous particles. In any one solution the size of these luminous particles depends upon the temperature; the higher the temperature, the smaller the particles, and vice versa.

In addition to this, the period of cooling has considerable influence on the size of the dispersed particles. In a very rapidly cooled solution the particles are smaller; if the cooling be gradual, considerably larger.

If, however, the rapidly cooled solution be allowed to stand two or three weeks, the particles will slowly grow and in time will attain the dimensions of those in the slowly congealed solution. The degree of dispersion of a soap solution depends upon the following factors:

1. Concentration of the dispersing phase.
2. Temperature of the solution.
3. Time and intensity of cooling.

In addition to these factors, which are significant for each dispersive material, this latter itself plays a most important role. If portions of a soap, which has been dried to constant weight, be dissolved in water, in alcohol and in glycerin, we find (with an equal fatty acid content, 0.4%) that the size of the particles is greatest in water, smallest in alcohol. Corresponding to this the dispersion figure is greatest for alcohol, intermediate for glycerin and smallest in water.

The dispersive figure is also a function of the transparency of the soap.

Relatively concentrated soap solutions in alcohol are transparent, while to obtain the same degree of transparency pure glycerin soap solutions must be considerably less concentrated and water solutions even more so.

The kind of fatty-acid salt used plays an important role.

Under similar conditions, the dispersion figure of a potash soap is considerably greater than that of a soda soap, from which results the greater transparency of a potash soap in water solution.

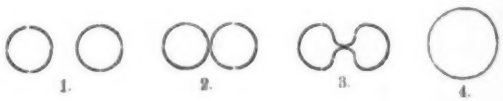
The minuteness of the separate particles of a fatty-acid salt or the dispersion figure, has also been given the name "specific surface." All salts which have the property of acting as coagulants on soaps, primarily cause a diminution of the specific surfaces, an enlarging of the separate suspended particles. If we concur in the view of Michaelis and assume that these suspended soap particles decrease their specific surfaces, under the action of coagulants, then, in somewhat of the manner shown in the following sketch, a uniting of the diminutive neighboring separate spheres occurs, analogous to two drops of water when brought into contiguity.

When coherence takes place between, dumbbell-shaped bodies are first formed, which flow together, forming larger spheres. See sketch 1, 2, 3, and 4.

As the individual particles increase in size, we approach the moment of separation into two solutions, quantatively separate from each other, the soap curd and the spent or nether lye; grain soap and its gelatinous or gluey residual liquor, the liquor and base of an Eschwege or Marseilles soap; or, lastly, the graining (figging) and base of a grained soft soap.

That a change in structure results from the action of coagulants can be seen from a consideration of the following.

If a soap be "filled" with water solutions of the coagulants, for example, solutions of Na Cl, K CL, $Na_2 CO_3$, $K_2 C0_3$ $Na_2 Si_2 O_9$, etc., the soap becomes more opaque, the more it contains of the coagulant. If a grain soap, through improper boiling, contains too great an excess of salt (Na Cl) it will be "follow" (dead) and opaque, while the same soap, properly manufactured, is transparent and glossy in appearance. The remedial means of use in such cases, are for excess of alkali (Na Oh K OH $Na_2 CO_3$ $K_2 CO_3$) to satisfy the latter by adding to the hot soap mass an easily saponifiable oil or fatty acid, previously heated to the same temperature. With grained soaps this is done while pouring into the forms or the conveyor of the cooling machine, with gelatinous soaps, directly to the completed decoction.



In case of an excess of salt (Na Cl) the procedure is necessarily different; however, this will be treated of later.

With grain soaps, having a gelatinous residue, this latter (the salt containing portion) is more opaque than the grain soap.

A rapidly cooled Eschwege soap forms no liquor and curd, but a soap of uniform appearance instead.

The graining of soft soaps is opaque, the base entirely transparent.

The reactions that should produce these various products can be stated as follows:

With filled soaps, which are uniform in outward appearance, we carry the filling to a point where coagulation has been effected to that decrease of the superfices, at which the particles are still too small to separate out from their suspended condition, or else not enough time is allowed for coagulation so that strata formation or separation can take place.

In marketing his product, the soap technicist also differentiates between these limits, in that he terms the relatively "under" filled soaps, II, a grain soap, these still being analogous to the grain soaps. Those highly filled are usually called IIIa, or glue soaps (household soaps), and they lack the general appearance of grain soaps, being entirely opaque.

Under-filled soap can be cooled in mass without trouble, while highly-filled soaps can but be safely cooled in small forms. In the first place, nothing is apparent to the naked eye; in the second case, however, stratification is precluded, and therefore the coagulative reactions are not allowed to take place.

The coagulative phenomena take place in the manufacture of all the technical soaps, and are shown by the following investigations.

If the base of an unadulterated natural graining soft soap or a pure glycerin toilet soap be brought under the ordinary microscope, the same is found to be thoroughly homogenous and comparable to a layer of clean water.

If a grain soap be made by boiling, and coagulation started with salt, we find on cooling that the coagulation will have advanced considerably. This advanced coagulation in the hot mass (which is allowed to cool gradually) occurs in this manner: From the nether layer, coagulated portions wander upward to the upper part which is already coagulated. In this upper viscos layer coagulation has already occurred with the change in temperature, and because of changes in the concentration, coagulants are carried to the upper stratum in such quantity as to maintain its equilibrium at a higher temperature.

As soon as the temperature falls a progressive coagulation takes place; in a grain soap therefore a series of coagulation products are to be found. The concentration of these, in pure soaps, is varied, as is also their transparency, so that under the microscope at least two or more coagulation products are recognizable.

The ultra-miscroscope is our means of investigating the particles of the dispersed phase, while under the ordinary microscope the various concentrated reaction products, coexistent, can be differentiated.

Comparing Figs. 1 and 2 with Fig. 3, the first two representing a soap allowed to cool naturally, the latter the same soap artificially refrigerated, we find that the number and apportionment of the systems differ considerably.

In an artificially cooled soap (Fig. 3) the dark points are much smaller and separated from each other, while the naturally cooled soap displays collections of veins or streaks, which result from the coagulating system of the grain soap on cooling.

Fig. 4 depicts a section of a soap having a gelatinous or gluey residue, at that point where the curd and residue are contiguous.

The veinings or branching in the curded portion, while in the gluey residue only small coagulation can be perceived, are the indication that the system tends toward higher viscosity, but because of its inherent immobility the interchange could not proceed further.

Fig 5 represents an Eschwege soap, and indicates by analogy that the production of such a soap is a special case of grain-soap formation due to coagulation during cooling.

5

That entire series of coagulation products are produced by the same primary solution, and that the latter only holds back such microus which are not changed by coagulants, is shown only with difficulty in the case of soda soaps. On cooling, soaps become very viscos, and hard, so that a separation of the coagulation products from the solution is a difficult matter, and therefore we use the liquor and curd of an Eschwege soap and the slime and grain of a grain soap as examples of various coagulated systems.

Coagulated potash soaps differ from this. Potash soaps when coagulated by the addition of electrolytes are technically termed grained soft soaps or granular soft soaps. These soaps do not harden on cooling and standing and the migration of the coagulation products effects itself easily, therefore the coagulated portion is entirely separate from the uncoagulated solution.

In the method of their production they are analogous to the Eschwege variety of soda soaps. The production of natural cured soaps is indeed the best evidence of the fact that the stability of the soap microns against coagulants, is a function of temperature, and also of time, and that the progress of the coagulation is not a matter of hours, but of days.

The granular soft soaps form on long standing the "grain" as coagulation product. Fig. 6 shows the grain of a granular soft soap, natural size. A closer examination of various soap grains shows widely differing sizes and form of the same which bear the closest relation to the viscosity of the soap.

In very viscous soaps, the grain is small and in form, shows flattened spheres, or ellipsoids. This is the explanation why the migration of the minute particles is obstructed and that only from small zones, in the same alignment, can coagulated particles come together.

Meal filled soaps show comparatively small grains, for their viscosity is higher, and by reason of the filling, the coagulation zones are separated from each other.

Less viscous soaps show grains, which are formed like fircones, in miniature. On closer examination these cones are found to be made up of separate rings. The formation of these structures is easy to understand. In the less viscous soaps, the coagulated particles gather about centers of attraction. As the coagulation products are very viscous and adhesive, they cannot again assume the spheroidal shape, but form themselves into more or less flattened cylinders, which adhere together in arrangement.

6 7

FIG. 6.—FUSION OF THE SPHERICAL PARTICLES.
FIG. 7.—ADHESION OF CYLINDERS IN CONES.

The tapering form follows from the fact, that in each center the coagulation proceeds from maximum reaction to a final minimum reaction; while this is in process an always decreasing number of spheroids enter into coalescence, which accounts for the tapering form.

That this formation is not always geometrically exact and symmetrical, is self evident, for here, exactly as in the case of other crystallization processes, various conditions affect the regular formation, and distorted forms result.

The typically regular form of the grains is shown in Fig. 6. These conceptions allow of concluding, that the separation products of a soap, have no vectorial character and that a time element enters, which proves the colloidal nature of soaps.

The formation of the granules is therefore a function of the viscosity, when coagulation takes place properly. That the transparency of soft soaps depends, in the greatest degree on the amount of excess alkali, is generally a recognized fact, the soap technicist tests a small amount of soap on a glass plate, noting carefully as it cools whether it loses in transparency. If it becomes less transparent, too much alkali is present, and must be neutralized by the admixture of an equivalent quantity of oil.

(*Continued on page* 236.)

TRADE NOTES

Mr. Louis Descollonges, of Descollonges, Fréres, Lyon, France, sailed for home on *La Savoie*, Dec. 8. He had just finished a trip to the West in the interest of his firm, which manufacturers synthetic perfume products. The American agents are Zinkeisen & Co., New York.

MAJOR JAMES B. HORNER AND HON. BENITO LEGARDA.

It gives us pleasure to present herewith the photograph of a gentlêman who may be termed the Nestor of the essential oil industry of this country, at least in so far as to the living members of the industry.

Major James B. Horner was born in Albany, N. Y., on August 5, 1839. In 1861 he enlisted in the Union Army as a private. The following year he was made second lieutenant, and later promoted to major for gallant conduct at the battle of Averysborough, N. C.

In 1865 he established himself in New York as exporter and importer of essential oils, drugs, etc., at 43 Cedar street, and in 1892 moved to his present location, 3 Platt street. Major Horner is spending the winter at Moutain Valley, Ark.

His firm represents Benito Legarda, Manila, P. I., and Ig. Siles, Acireale, Sicily. The former is the well-known shipper of ylang ylang oil, and is said to be the largest producer of this important oil in the world.

Mr. Legarda is Resident Commissioner from the Philippine Islands at Washington, and in that and other capacities has been in the public eye since the annexation of the Philippines.

Mr. C. G. Euler, American agent of Antonie Chiris, Grasse, France, returned on the 6th inst. by *Kaiser Wilhelm der Grosse*, from a month's trip to Germany and France.

Frank M. and Walter Noonan, of T. Noonan & Son, Boston, Mass., makers of perfumes and toilet preparations, were recent visitors to New York.

Through the courtesy of The Charles E. Sholes Company, 164 Front street, New York, we are permitted to print this picture of its president. Mr. Sholes is an Ohioian, whose first chemical affiliation was with the Marsh & Harwood Co. (now a part of the Grasselli Chemical Co.). Subsequently he served the Grasselli Chemical Co., Nichols Chemical Co., and General Chemical Co., in various managing capacities, until 1904, when he organized The Charles E. Sholes Company as a clearing house for the Naugatuck Chemical Co., Georgetown Chemical Works (whose factories he also planned and built), and for the J. T. Baker Chemical Co., Binns Chemical Works, Ammonia Departments of the New Haven Gas Light Co. and Indianapolis Gas Co., etc. Later on The Charles E. Sholes Company gave up some of these alliances and took on others, which also brought them into the essential oils and synthetics field.

CHARLES ESTE SHOLES.

Mr. Sholes is a firm believer in advertising, and the Sholes' trade organ, *Things Chemical*, became widely known through its technical articles by Dr. Lassar-Cohn, through its advocacy and advertising of analyzed chemicals for laboratory use and through its fables and fun. He also believes that "the busiest man is the one who always has time for one thing more," and seems to practise his preaching. He is always in personal attendance of affairs at 164 Front street, and also directs the affairs of several other interests. Incidentally, he is a good whip, rides to hounds, is his own chauffeur and sings with the Mendelssohn Glee Club and in the choir of a prominent church.

Mr. H. E. Wiedemann, St. Louis, Mo., whose card appears on our classified ad. page, is a consulting and analytical chemist, and chemical engineer. He is a graduate in chemistry from the Rose Polytechnic Institute, Lafayette, Ind., 1903. For two years he had charge of the chemical laboratory of Nelson Morris & Co., and from 1905 till July 1, 1910, member of the firm of Kessler & Wiedemann. During the winter months Mr. Wiedemann lectures in chemistry at Washington University, St. Louis. He is president of the St. Louis Chemical Society, and a member of the council of the American Chemical Society, and treasurer of the Academy of Science, St. Louis.

Mr. Max Lang, who recently completed a trip to Canada and the Middle West for Heine & Co., Leipzig, Germany, sailed for home on the 10th inst. by the *Kaiserin Auguste Victoria.*

The Atlantic Extract Co., 75 Division avenue, Brooklyn, N. Y., incorporated for $2,000, are successors to the Brooklyn Extract Co. (not inc.). The directors are: S. Henigson, Emma Henigson and Chas. H. Lewis. Mr. Lewis is a graduate of the Brooklyn Polytechnic Institute, '10.

The Consolidated Fruit Jar Co., New Brunswick, N. J., call our attention to the granting of a United States patent on their corrugated collapsible tube. These corrugations may be made in designs of great variety to meet the ideas of users. Because of their ownership of this patent the company can guarantee exclusive use of any design adopted.

Another of their recent specialties is the 1-lb. capacity metal container for lemon and similar oils. This container is made of tin plate, copperized on the outside, and well serves the same purpose as the more expensive copper containers.

Mr. Ben Elson, of Elson & Brewer, New York, American agents for Tombarel Fréres, Grasse, France, has just returned from a Western trip. He will shortly sail on a combined business and pleasure trip to Europe. He reports business in good shape.

Mr. G. A. Herne, chief chemist for B. T. Babbitt, Inc., the well-known soap manufacturers, gave an interesting talk on soap manufacture at a meeting of Lehigh (Pa.) University Chemical Society on Nov. 17. Mr. Herne is a graduate of Lehigh of the class of 1899.

Prompt action by a watchman employed by the Granite City Soap Co., Newburgh, N. Y., prevented what might have been a disastrous fire in the plant. He discovered a blaze in the soap-cutting department.

At the last annual meeting of the shareholders of A. F. Pears, Ltd., manufacturer of Pears' Soap, the chairman announced that the company since it was started with the modest capital of $35,000 has spent $15,000,000 for advertising.

To find a satisfactory adhesive to paste labels on tin is not an easy matter. The users of Tinnol made by the Arabol Mfg. Co., 100 William street, New York City, claim that they have just what they want. It is said to be an excellent sticker, and not to discolor or blot the most delicate labels.

E. J. Knapp, until recently connected with E. J. Knapp & Co., Cleveland, Ohio, has formed the E. J. Knapp Manufacturing Company. The concern is located at 2606 Detroit avenue, where it will make a specialty of flavoring extracts.

Van Dyk & Co., New York, have issued a set of nine colored postcards showing views of their building, offices, manufacturing department, experimental laboratory, etc. This idea is a novel one, and should serve to give the recipients of the cards a good idea of the company's establishment. They are particularly proud of the experimental laboratory, where the work of investigation is done. We publish herewith a view of the laboratory which, it appears, is well equipped for the work to be

done. Here one of the company's new products, Rose Aldehyde C, was evolved, which is mentioned in the advertisement in this issue.

NEW INCORPORATIONS.

American Soap & Compound Co., Milwaukee, Wis.; W. E. Magerfleisch, W. J. McElroy, Leo Hofmeister.

Amale Soap Co., Chicago; capital, $200,000; E. C. Auld, M. Clemens, E. P. Benz, Chicago.

James T. Horton Co., Newark, N. J.; capital, $10,000; directors, William H. Nicholay, Henry E. Nicholay, Alice E. Nicholay. To manufacture extracts, toilet, medicinal and chemical preparations.

Lavox Company, Chicago, Ill.; capital, $100,000; to manufacture chemicals, drugs and toilet articles. Incorporators: L. Clark, L. E. Young, T. O. Hunt, Chicago.

Central Chemical Company, Boston, Mass.; capital, $50,000. To manufacture toilet articles. President, D. E. Loweree, Ellsworth, Mass.; treasurer, L. K. Thayer, Somerville, Mass.

CIRCULARS, PRICE LISTS, ETC., RECEIVED.

Bernard-Escoffier Fils, Grasse, France. (George V. Gross, sole agent for United States and Canada, New York.) Wholesale list of raw materials for perfumers, soap makers, druggists and chemists. Special attention is called to liquid natural flower essences; flower pomades No. 36, floral waters, essential oils, aromatic wood oils, white bees' wax, olive oil, etc.

T. H. GROSSMITH, New York.—Wholesale list of essential oils, synthetics, pomades, floral waters, musk, civet, fruit essences, etc. Mr. Grossmith has added to his line the synthetic products of Fabrique de Products Chimiques "Flora," S. A., Dubendorf-Zurich, Switzerland. These synthetic products include all those required by the perfumer and soap maker, a special feature being made of artificial musk and violet.

COMPAGNIE MORANA, Zurich, Switzerland. (American Branch, New York and Chicago.) Wholesale list of synthetic products. Special attention is invited to Thional (artificial violet), Heliotropine, Morana-Fixateur (artificial ambergris), Radial (a new basis for novelties), Iris Absolue, Irisol, etc.

SCHIMMEL & Co. (Fritzsche Brothers), Miltitz, near Leipzig, and New York.—Semi-annual Report, October, 1910. The contents of this issue are as follows: Introduction, Commercial and scientific notes on essential oils, New essential oils, Pharmacopœias, Chemical preparations and drugs, Notes on recent research work: General, Bibliography, Analytical, Physical, Pharmaco-physiological, Phyto-physiological, Hydrocarbons, Alcohols, Aldehydes, Ketones, Phenols and Phenol Esters, Acids, Nitrogenous Bodies. In subsequent issues we shall publish extracts from this report on the principal topics of interest.

WETLIN CHEMICAL CO., Chicago.—Price list of specialties, synthetics, and sundries for manufacturers of perfumes and toilet preparations. The company offers many standard synthetic odors and a line of "Florodors"—concentrated perfumes for extracts and toilet waters.

OBITUARY.

Louis Dohme, president of Sharp & Dohme, Baltimore, Md., died on Dec. 13.

Michael Cudahy, founder of the packing house firm bearing his name died in Chicago on Nov. 27th of pneumonia, at the age of seventy years.

John Frederick William Meyer, president of the Meyer Brothers Drug Company, died at Fort Wayne, Ind., September 7. Mr. Meyer was born in Prussia, in 1824, and came to this country at the age of twenty-three years. A short time afterward he engaged in the retail drug business with his brother, the late C. R. G. Meyer. Later this business developed into the jobbing house of Meyer Brothers. Mr. Meyer was twice married. Three children of the first marriage survive him, and four of the second union. Although in his eighty-sixth year at the time of his death, he has always been actively engaged in business and until recent years had enjoyed good health.

Albert Ernest Leach, one of the foremost of American food chemists, died at Denver, Colo., August 22, aged forty-six years. He was born at Boston, and in his early education specialized in mechanical studies. At the age of twenty-three years he took up patent law, soon becoming a recognized expert. Five years later he began work as an assistant analyst entering the profession in which he was later to rise to the top. Mr. Leach was perhaps best known as an author, "Food Inspection and Analysis," a volume of almost 1,000 pages, being his masterpiece. He was at one time analyst of the Massachusetts Board of Health, lecturer at the Massachusetts Institute of Technology and the Brooklyn Polytechnic Institute. At the time of his death he was in charge of the Denver laboratory of the Federal Bureau of Chemistry and one of the editors of the *Journal of Industrial and Engineering Chemistry*. His wife, three daughters and one son survive him.

PURE FOOD AND DRUG NOTES.

In this section will be found all matters of interest contained in FEDERAL AND STATE official reports, newspaper items, etc., relating to perfumes, flavoring extracts, etc.

NOTICE OF JUDGMENT NO. 627.

Adulteration of Lemon Flavor.

On or about March 6, 1910, the Hetfield Extract and Manufacturing Company, a corporation, New York City, shipped from the State of New York to the State of New Jersey a consignment of a food product labeled "Goldenrod Compound Lemon Flavor Compound of oil lemon Dil. alcohol, Veg. color, Hetfield Ext. & Mfg. Co., New York, N. Y." Samples from this shipment were procured and analyzed by the Bureau of Chemistry, United States Department of Agriculture, and as the findings of the analyst and report made showed that the product was adulterated, in that it consisted of a highly dilute solution of citral in methyl alcohol, containing practically no oil of lemon, and colored with a coal-tar dye.

The defendant entered a plea of guilty to the above information and the court imposed a fine of $5.

NOTICE OF JUDGMENT NO. 634.

Misbranding of Olive Oil.

On or about April 17, 1909, Concetta Palma, doing business as the Lucca Olive Oil Importing Company, shipped from the State of New York to the State of New Jersey a consignment of a food product labeled: "Olio d'Olivia Colombo Brand Marca Depositata. Cotton seed oil. Olive Oil. Compound. Lucca Olive Oil Importing Company, New York, N. Y." Samples of this shipment were procured and analyzed by the Bureau of Chemistry, United States Department of Agriculture, and as the findings of the analyst and report made showed that the product was misbranded, in that the label aforesaid on the container thereof was false and misleading as regards the ingredients or substances contained therein because the words "Olio d'Olivia" and "Olive Oil" appeared in large type, and the statement "Cotton seed oil" appeared thereon in very fine and indistinct type, which fact would mislead the purchaser into believing that the contents of said cans were pure olive oil, whereas in truth and in fact it was a mixture of cotton seed oil and olive oil, the cotton seed oil constituting over 50 per cent. of the mixture.

On September 15, 1910, the defendant entered a plea of guilty to the above information, and the court suspended sentence.

NOTICE OF JUDGMENT NO. 637.

Adulteration and Misbranding of Lemon Extract.

On or about December 7, 1909, the Symns-Utah Grocery Company, Salt Lake City, Utah, shipped from the State of Utah to the State of Nevada a quantity of an alleged extract of lemon in bottles labeled "Double Strength, Concentrated Extract of Lemon, Symns-Utah Grocery Company, Salt Lake City, Utah." Samples of this shipment were procured and analyzed by the Bureau of Chemistry, United States Department of Agriculture, and as it appeared from the findings of the analyst and report made thereon that the product was adulterated and misbranded, in that the contents of each of said bottles was not extract of lemon, as represented by said label, but was a dilute terpeneless extract of lemon, artificially colored with a yellow dye so as to simulate the color of genuine lemon extract, and so as to conceal the fact that it was a dilute terpeneless extract of lemon; in that said

(*Continued on page* 236.)

PATENTS AND TRADE MARKS

NOTE TO READERS.

This Department is conducted under the general supervision of Samuel E. Darby, Esq., Patent and Trade Mark Attorney, 220 Broadway, New York, formerly Chief Clerk and Examiner, U. S. Patent Office. This report of patents, trade marks, labels and designs is compiled from the official records of the Patent Office in Washington, D. C. We include everything relating to the four co-ordinate branches of the essential oil industry, viz.: Perfumes, Soap, Flavoring Extracts and Toilet Preparations.

The trade marks illustrated are described under the heading "Trade Marks Applied For," and are those for which registration has been *allowed*, but not yet *issued*. All protests for infringement, etc., should be made promptly to the Commissioner of Patents, Washington, D. C.

All inquiries relating to patents, trade marks, labels, copyrights, etc., should be addressed to

PATENT AND TRADE MARK DEPT.,
Perfumer Pub. Co., 100 William St., New York.

TRADE MARKS REGISTERED.

80,222.—Certain Chemicals.—Fritsche Brothers, New York, N. Y.

Filed March 3, 1910. Serial No. 51,248. Published September 20, 1910.

80,227.—Face Powder, Rouge, and Nail Polish Spread on Paper.—La Francesa Co., Louisville, Ky.

Filed July 18, 1910. Serial No. 50,876. Published September 20, 1910.

80,263.—Soap.—Armstrong Packing Company, Dallas, Tex.

Filed August 7, 1909. Serial No. 44,017. Published March 15, 1910.

80,267.—Antiseptic.—Samuel Cabot, Inc., Boston, Mass.

Filed June 6, 1910. Serial No. 50,134. Published September 27, 1910.

80,272.—Preparation for Cleaning the Teeth and Liquid Antiseptic.—Eleto Company, New York, N. Y.

Filed December 3, 1908. Serial No. 39,061. Published September 27, 1910.

80,277.—Hair Dressing and Hair Tonic.—Giroux Manufacturing Company, Buffalo, N. Y.

Filed July 15, 1910. Serial No. 50,856. Published September 27, 1910.

80,287.—Granulated Chemical Cleansing Compound.—Oakley Chemical Co., New York, N. Y.

Filed March 1, 1909. Serial No. 40,869. Published September 27, 1910.

80,289.—Soap.—The Maude Odell Company, New York, N. Y.

Filed April 28, 1910. Serial No. 49,368. Published September 27, 1910.

80,302.—Certain Toilet Preparations.—Schuyler Colfax Borom, Minneapolis, Minn.

Filed June 13, 1910. Serial No. 50,289. Published October 4, 1910.

80,303.—Soap.—The Burckhardt Company, Cincinnati, Ohio.

Filed June 17, 1910. Serial No. 50,409. Published October 4, 1910.

80,323.—Cold Cream.—Frederick Meinhard, Peoria, Ill.

Filed May 12, 1910. Serial No. 49,656. Published October 4, 1910.

80,325.—Soap.—The M. & J. Schnaible Company, La Fayette, Ind.

Filed July 17, 1909. Serial No. 43,602. Published September 28, 1909.

TRADE MARKS APPLIED FOR.

45,681.—The H. & M. Hair Tonic Co., Seattle, Wash. Filed Nov. 2, 1910.—Hair Tonics.

47,537.—S. Strunz & Son, Pittsburg, Pa. Filed Feb. 2, 1910.—Semiliquid Soap.

47,686-47,688-47,693.—Kentucky Refining Co., Louisville, Ky. Filed Feb. 9, 1910.—Cottonseed Oil.

49,918.—The Henry Muhs Co., Passaic, N. J. Filed May 25, 1910. (No claim is made to the word "Brand.") —A Compound of Refined Cottonseed Oil and Oleo-Stearin.

50,016.—The Summit City Soap Works, Fort Wayne, Ind. Filed May 31, 1910.—Soap and Washing Powder.

50,384.—Philadelphia Quartz Co., Philadelphia, Pa. Filed June 17, 1910.—Soap.

51,448.—Daniel L. Mertz, Watertown, S. D. Filed Aug. 18, 1910.—Hair Tonics.

51,677.—Catherine L. Mellynn, San Francisco, Cal. Filed Sept. 6, 1910.—Superfluous Hair Remover.

52,216.—S. J. Valk & Bro., New York, N. Y. Filed Oct. 11, 1910.—Olive Oil

52,546.—Paul Sussman, New York, N. Y. Filed Oct. 31, 1910.—Pocket Powder Puffs

SOAP; PRODUCTION OF A SOLID HYDROCARBON.

C. Bohme and E. B. Wolf, Chemnitz, Germany. Eng. Pat. 23,013, Oct. 8, 1909. Under Int. Conv., May 13, 1909.—Fats readily saponifiable in the cold (e.g. cocoanut or palm oils) are mixed with the required proportion of hydrocarbon (e. g., 30 to 35 kilos. of benzine or turpentine oil to 130 kilos. of fatty oil), and the mixture is saponified with an alkili solution of succoncentration that the proportion of water in the finished soap does not exceed 25 per cent. Under these conditions a hard soap containing 10 to 20 per cent. of hydrocarbon is obtained.

FOREIGN CORRESPONDENCE AND MARKET REPORT

FRANCE.

GRASSE.—Spurred on by the success of the orange flower growers in maintaining a syndicate for the control of prices, the growers of roses have combined for the same purpose. It is probable that roses will be held at a higher figure next Spring and as a result all French rose products will advance in price. Some two months ago the movement was initiated and now over 90 per cent. of the growers are allied.

On Nov. 9, there was celebrated in the Saint Augustin Church, of Paris, the marriage of Mlle. Léonie Vallois, the charming daughter of M. Georges Vallois, manager of the firm of Antoine Chiris, Grasse, with M. Georges Paret.

A new junior partner has entered the firm of Antoine Chiris, but he will not assume active duty for some years, as his first appearance in this world took place on Nov. 25, the same date on which his brother Léon was born eight years ago. The boy has been christened Jean Antoine. Our congratulations to M. and Madame Georges Chiris.

PARIS.—*L' Illustration*, referring to the recent visit to Paris of the Bulgarian Sovereign says:

Ferdinand the First enjoys not only the repute of a wise politician and clever diplomatist, but every one knows that his constant care and object is to develop and increase the power and abilities of the people over which he rules. Now, horticulture is one of the greatest elements of wealth in Bulgaria, which possesses the famous rose garden of Kazanlik, and the King, passionately fond of botany, gave himself the name of "Prince of Gardeners." It is then as a thorough connoisseur that he enjoyed the visit he paid with the Queen to the wonderful Roseraie (rose garden) of Bagatelle. Attended by the most well-informed of guides, M. Forestier, "Conservateur des Promenades de Paris," M. Bellan, president of the town council, welcomed the royal visitors. M. Forestier presented to them a few flowers from the first great rose garden of France, founded by Louis Phillipe in his estate of Neuilly, and offered the Queen a magnificent bunch of these flowers, where, very fittingly, "l' Etoile de France," matched with "Prince de Bulgarie."

OLIVE CROP IN NORTHERN AFRICA.

TRIPOLI-IN-BARBARY.

[From Consul John Q. Wood.]

This year the olive oil yield promises to be below the average quantity, but because of the high prevailing prices the returns therefrom will be more than from the average crop. The olive output varies from 160,000 to 300,000 bushels.

Italian capitalists have erected a complete plant for the pressing of olives just outside the city, having imported the most approved Italian machinery. The plant has been in operation only one season, with the result that a much larger amount of oil has been secured per bushel than was possible under the antiquated process employed by the Arabs.

TUNIS.

[From Consular Agent Auguste J. Proux.]

The olive harvest will be exceptionally poor, owing to lack of rain, and will not exceed as a whole one-third a good average production. Last year was an equally bad year for olives, and stocks of olive oil are well-nigh exhausted. Wholesale prices are quoted for first pressure at $13 per 100 pounds.

In the present state of the market it will become possible once more to import American cotton-seed oil, notwithstanding the usually prohibitive dues, namely, customs 35 francs per 100 kilos, town dues 3 francs per 100 kilos, equal altogether to $3.03 per 100 pounds.

A warning is given, however, in view of the experience of English importers of American oil some two years ago. No contract should be signed except through reliable agents, cash against documents for goods in bond. In no case ought the shippers to advance custom or local dues, those being non-returnable in case of re-export.

PRODUCTION OF LINALOL IN FORMOSA.

On the Island of Formosa the camphor tree grows in great plenty, and its wood should contain a considerable percentage of linalols. Because of this plentitude of raw material the heads of the Formosa camphor monopoly have, during the past year, conducted an investigation with the view of taking in hand the extraction of linalol from the wood and also, by more thorough methods, to increase the output of the commercial article. As linalol in Europe and America is used only in the manufacture of toilet articles, perfumes, etc., the increased yield which will ensue need not be proportionately large to cause a considerable decline in prices. In addition to this the yield of camphor will be greater and the heads of the monopoly have informed their European and American agents so that they may be ready to increase their sales.

These activities of the Formosan authorities are probably a direct sequence to the report of the German Imperial Consulate at Nagasaki as to the demand for linaloe oil of which linalol is the principal constituent.

This demand has increased during the last year. Because of the catastrophe in Sicily there is a scarcity of lemon oil, consequently the consumption of linalol oil has increased and local market reports (Feb., 1910), indicate a correspondingly rising price for the same.

The price of linalol in Japan at this writing is, according to reports, 8 yen ($4) per pound.

DOMINICAN VANILLA.

The Dominican correspondent of the "West India Committee Circular" states that a few month ago an expert vanilla-curer came to the island. He had now cured his first crop, the green pods being obtained from the few

plants in existence. He informed the "Circular" correspondent that he had never seen better vanilla, while a large proportion of the pods are of such a length that at present there is no quotation for them. In the interior of Dominica, the planter states, many districts are perfectly adapted to the growth of vanilla, and if he found that the prices realized were as good as he anticipated he would in all probability remain at Dominica and purchase the green vanilla for curing. Many planters who took up land in the interior put in a few vines, but the immense trouble and difficulty involved in the curing had prevented any real attention being paid to the industry.

THE DOMESTIC MARKET.

The tapering off of business in the essential oil industries toward the end of the year leaves trading in much the same general condition as at similar periods in previous years. Perfumers and soapmakers will not buy on any scale much before the middle of January.

Reports from Italy regarding the lemon and bergamot crops are not yet definite or inclusive enough to impel buyers to plan contracts freely. The reports now in hand indicate climatic conditions unfavorable to the normal production of these oils, and an increase in price may be expected, though not to any very great extent, unless speculative influences should control. The interference of the Italian Government, through the Camera Agrumaria, may have a marked effect, but definite advices, since the report of Mr. Eduardo Jacob, are not yet at hand.

BEANS.

The position of Mexican and Bourbon beans is now the reverse of what has prevailed in recent years in respect of price. Mexican cuts have reached the relatively low price of $2.25, while Bourbons are being held abroad at 35 francs and over.

Local dealers' stocks are not plentiful and little activity is looked for in less than a month or so.

SOAP MATERIALS.

Tallow, city, .07½ (hhd.); country, .07¼.

Grease, brown, .06½; yellow, .07.

Cottonseed Oil,, crude, tanks, 45-46; winter yellow, .07¼@.07¾.

Cocanut Oil, Cochin, 10½; Ceylon, .09⅜.

Olive Oil, in bond, .90@.95.

Olive Oil, Foots, prime, .08.

Palm Oil, Lagos, .08½; red, prime, .07¾.

Peanut, .07.

Soya Bean Oil, .08.

Chemicals, borax, .04½; caustic soda, 80 p. c. basis of 60 p. c., $1.90.

Rosin, .35@.36.

Almond, Bitter.....per lb.	$3.50	Geranium, French	$11.00
" F. F. P. A...	4.50	" Turkish 3.00-3.25	
" Artificial	.85	Ginger	4.50
" Sweet, True.....	.55-.60	Gingergrass	1.35
" Peach-Kernel	.30-.35	Hemlock	.55
Amber, Crude	.13	Juniper Berries, twice rect....	1.10
" Rectified	.20	Kananga, Java	4.00
Anise	1.20	Lavender, English	7.00
Aspic (Spike)	1.25	" Cultivated	2.50
Bay, Porto Rico.....	3.50	" Fleurs, 28-30%....2.00-2.25	
Bay	2.10	Lemon	.85
Bergamot, 35%-36%	3.70	Lemongrass	1.50
Birch (Sweet)	1.75	Likari	12.00
Bois de Rose, Femelle.....	4.50	Limes, expressed	2.00
Cade	.20	" distilled	.60
Cajeput	.60	Linaloe	3.00
Camphor	.12	Mace, distilled	.80
Caraway Seed	1.10	Mustard, natural	4.10
Cardamom 11.00-18.00		" seed. gen.....	8.50
Carvol	1.75	" artificial	2.00
Cassia, 75-80%, Technical.. ..	.90	Myrbane, rect.	.12
" Lead free.....	1.20	Neroli, petale 60.00-80.00	
" Redistilled	1.60	" artificial	17.00
Cedar, Leaf	.80	Noumea	3.50
" Wood	.18	Nutmeg	.90
Cinnamon, Ceylon 6.50-12.00		Opoponax	7.00
Cirtonella	.26	Orange, bitter	2.50
Cloves	1.10	". sweet	2.25
Copaiba	1.25	Origanum	.40
Coriander 6.00-13.00		Orris Root, concrete ..(oz.) 3.50-4.50	
Croton	.75	" " absolute 28.50-32.00	
Cubebs	4.25	Patchouly 4.00-4.50	
Erigeron	1.70	Pennyroyal	1.80
Eucalyptus, Australian, 70%..	.50	Peppermint 2.00-2.25	
" American	.60	Petit Grain, American	3.00
Fennel, Sweet	1.40	" " French	6.50
" Bitter	.75	Pimento	2.25
Geranium, African 3.50-4.00		Rose .....(oz.) 6.50-7.50	
" Bourbon 3.25-3.50		Rosemary, French	.80
		" Trieste	.70
		Rue	3.00
		Safrol	.50
		Sandalwood, East India	3.00
		" West India	1.50
		Sassafras, artificial	$0.35
		" natural	.70
		Savin	1.40
		Spearmint	3.25
		Spruce	.50
		Tansy	2.50
		Thuya	2.30
		Thyme, red, English	1.10
		" white, "	1.30
		Vetivert, Bourbon	8.50
		" Indian	35.00
		Wintergreen, artificial	.38
		" genuine 4.80-5.50	
		Wormwood	6.50
		Ylang-Ylang 50.00-65.00	
		BEANS.	
		Tonka Beans, Angostura.....	3.75
		" " Para	3.00
		Vanilla Beans, Mexican.....2.75-4.50	
		" " " Cut...2.25-2.50	
		" " Bourbon 3.00-4.00	
		" " Tahiti 1.10-1.25	
		SUNDRIES.	
		Ambergris, black.....(oz.)	20.00
		" gray ..... "	25.00
		Civet, horns ..... "	1.75-1.85
		Cologne Spirit	2.70
		Cumarin	3.30
		Heliotropine	1.90
		Musk, Cab., pods.....(oz.)	8.00
		" " grain ..... "	15.00
		" Tonquin, pods.... "	18.00
		" " grains.. "	22.00
		" Artificial, per lb.....	1.50
		Orris Root, Florentine, whole	.12
		Orris Root, powdered and granulated	.14
		Talc, Italian .....(ton)	50.00
		" French ..... "	40.00
		" Domestic ..... "	15.00-25.00
		Terpineol	.35-.45
		Thymol	1.85
		Vanillin .....(oz.)	.33-.35

PURE FOOD AND DRUG NOTES.

(*Continued from page 232.*)

substance had been mixed and packed with the other contents of said bottles so as to reduce, lower, and injuriously affect the quality and strength of the product; in that a dilute terpeneless extract of lemon had been substituted for lemon extract, and in that each of said bottles contained only a trace of oil of lemon, whereby the strength and purity of the product were below the professed standard and quality for which it was sold.

On August 6, 1910, the cause came on for hearing, and defendant entered a plea of guilty to the above information, whereupon the court imposed a fine of $25 and costs.

NOTICE OF JUDGMENT NO. 640.

Misbranding of Vanilla Extract.

On or about March 8, 1910, the Crown Manufacturing Company, a corporation, New York City, shipped from the State of New York to the State of New Jersey a consignment of a food product labeled: "Vanilla. Scientifically prepared. Colored with harmless color. Serial No. 4664. Crown Manufacturing Company. New York. St. Louis." Samples of this shipment were procured and analyzed by the Bureau of Chemistry, United States Department of Agriculture, and as the findings of the analyst and report made showed that the product was misbranded, in that the word "Vanilla" on the label aforesaid appeared in large type, and the words "Scientifically prepared. Colored with harmless color." appeared in very small type, which fact would mislead the purchaser into believing that the said bottle contained extract of pure vanilla, whereas in truth and in fact it was labeled in a manner whereby its inferiority was concealed and was an imitation extract of vanilla, artificially colored.

On September 15, 1910, the defendant entered a plea of guilty to the above information and the court imposed a fine of $15.

NOTICE OF JUDGMENT NO. 644.

Adulteration and Misbranding of Lemon Extract.

On or about June 4, 1908, the Hall-Whitney Manufacturing Company, a corporation, Binghamton, N. Y., shipped from the State of New York to the State of Indiana a quantity of a food product labeled: "Finest quality. E. & E. Trade Mark. Strictly Pure Flavoring Extract of lemon. Color simulated. Guaranteed under the Food and Drugs Act of June 30, 1906. Serial No. 2950. Distributers Erwin & Eberwine, Evansville, Ind." Samples from this shipment were procured and analyzed by the Bureau of Chemistry, United States Department of Agriculture, and as it appeared from the findings of the analyst and report thereon that the product was adulterated, in that dilute extract of lemon had been unlawfully and knowingly substituted wholly or in part for strictly pure flavoring extract of lemon, which the product purported to be; and alleging that the product was misbranded, in that the label and the representations and statements contained thereon were false and misleading and intended and calculated to deceive the purchaser of the product, because said label and printed statements represented the product to be strictly pure flavoring extract of lemon when, in truth and in fact, it was not a strictly pure extract of lemon, but was in fact adulterated by the substitution of the dilute extract of lemon.

On December 8, 1909, the defendant entered a plea of guilty to the above information and the court imposed a fine of $100.

COLLOID CHEMISTRY OF SOAPS.

(*Continued from page 239.*)

Because of partial coagulation, the base-original solution differs greatly from the grain, in the case of a granular soft soap. This is indicated by the following analysis:

BASE (CLEAR SOLUTION).

	Per Cent.
Hydrated fatty acid	36.72
Combined alkali (K_2O)	6.20
KOH, free	0.37
K_2CO_3	5.61
Glycerin	2.97

GRAIN (COAGULATED SYSTEM).

	Per Cent.
Hydrated fatty acid	73.19
Combined alkali (K_2O)	12.07
KOH, free	0.00
K_2CO_3	0.30
Glycerin	0.29

The change of concentration conditions in granular soft soaps is a very significant one. The fatty acid content in the grain is nearly double that of the base, while free alkali (KOH) is entirely missing, and carbonate as well as glycerin are only absorbed in small amount by the grain.

As a consequence of the greater fatty acid content, which indicates high concentration, and sensitiveness of the microns, the grain forms an entirely hard soap, while the base is a thick, honey like fluid.

The base appears homogeneous through the microscope, from which we conclude that the solution remaining in it, is not a coagulated multi-phased colloidal system.

If we, however, bring under the microscope a section of the grain, we find (Figs. 7 and 8) very small branchings or ramifications, situated in a solution. Owing to the higher concentration, small percentages of coagulants, after separation, can produce further coagulation in the grain. In the latter there must exist at least two systems differing in composition. This can be easily seen through the microscope, but the separation of these colloidal systems and their analysis, cannot be successfully accomplished.

From these experiments, we see that it is possible to obtain from one colloidal system, by partial coagulation, three individual visible systems; which on analysis are proven to be of widely differing compositions; the variation with one granular soft soap in fatty acid content can amount to 5 per cent. of hydrated fatty acid, we conclude from this that crystallization in the chemical sense, with fixed proportions does not take place in soaps.

There follows further that the stability of the soap microns relative to coagulants differs widely; while one part of the microns, as submicrons (very finely divided) remains in the solution and afterward forms an entirely transparent gelatine, another portion coagulates to a thick, opaque mass, which under the microscope, is seen to consist of several systems.

Whether this fractioning is dependent on a fixed proportion of the various fatty acid salts, or whether other influences come into play, will not be explained at this time.

(*To be continued.*)

CLASSIFIED ADVERTISEMENTS.

On account of our wide circulation among manufacturers, dealers, importers, etc., of perfumery, soaps, toilet specialties, flavoring extracts, etc., our readers will find this column a quick and satisfactory means for advertising temporary matters. To display advertisers and regular subscribers this service is free; all others 25c. per line per insertion. Cash with order. Address all communications to PERFUMER PUB. CO., 100 William St., New York.

BUSINESS OPPORTUNITIES

Do you wish to make a first-class shaving soap, in stick or powder form? H. M. W., care of this journal.

FOR SALE.—1 1,500-lb. Dopp Crutcher with engine attached in good condition, very cheap. Address A. B. C., care of this journal.

PERFUMERY SALESMEN WANTED for Eastern and Southern territory. Address, with references and experience, THE WILLIS H. LOWE CO., Boston, Mass.

FORMULAS of Massage Creams, Toilet Preparations, Extracts, Baking Powders etc., for sale; terms moderate. E. Lebeuf, 79 13th avenue, Newark, N. J.

WANTED.—A crimping machine for tooth powder boxes; state conditions of same also whether for hand or power. Address Selick, 56 Leonard street, New York City.

WE ARE SPECIALISTS in the manufacture of casein rolling massage cream. Write us for samples and quotations. Get our prices before placing your contract. MARK W. ALLEN & Co., Detroit, Mich.

WANTED.—A salesman; sober, honest and successful for a toilet specialty and perfumery line, with an established trade either South or West. Address with references, FINLAY, DICKS & COMPANY, Ltd., New Orleans, La.

We will pay well for high-class practical formulæ for creams, such as casein, rolling massage, vanishing cream, etc. Give cost per pound, and send sample if convenient. Communications confidential. Secretary Alpha Chemical Company, 604 Mission street, San Francisco, Cal.

FOR SALE.—Paying business, established six years, manufacturing, complete line of Perfumes, Toilet Waters, Powders and Extracts. Will sacrifice at invoice, about $2,000, which includes trade name, formulae and good will. Reason for selling, sickness. For further particulars, address T. K., c/o this journal.

FOR SALE very cheap, on account of ill-health, one of the finest toilet requisites ever formulated. The stock on hand of everything connected with its manufacture, advertising, etc., cost six times what the whole business can be purchased for. This is no ordinary preparation, and there is a fortune in it, if handled by the right people. For full particulars, etc., address P. O. Box No. 691, New London, Conn.

WANTED.—Superintendent for manufacturing and finishing department in large laboratory; must have a thorough practical knowledge concerning the manufacture of perfumes and toilet goods. Only those need apply who are fitted by experience and education to assume a responsible position. Applicant must furnish unquestionable proof of ability, integrity and industry. Apply by letter only to A. H. Cosden, 111 W. 27th St., New York City.

WANTED.—A competent man to take charge of laboratory, manufacturing synthetics, compounded oils, toilet preparations, creams, etc. We want a man of experience whose knowledge is at the complete disposal of his employer—one who is loyal and honest. A fair salary to the right man. Must be of good habits. A good opening for the right kind of man. Address "A. B.," care this journal.

SALESMEN WANTED.—To handle our line of Concentrated Perfumes; Cream, etc. Liberal commissions and exclusive territories to right parties. Especially desirous of representation on the Pacific Coast. Address O. K., care of this journal.

WANTED.—A salesman in every important center to sell our line of synthetics, concentrates and supplies to manufacturers of toilet preparations and large retail druggists. Familiarity with line not a necessity. Address with full particulars, Wetlin Chemical Co., 5323 State St., Chicago, Ill.

WANTED.—A thoroughly experienced man for a large factory to make face and massage creams, toilet waters and toilet specialties in general. Must be sober, honest, active and reliable; steady position to good man. Address, giving experience, reference, etc., to F. C. M., c/o THE AMERICAN PERFUMER.

SITUATIONS WANTED.

PERFUMER—Several years' experience with best firms, Know how to buy goods and use them properly. Best references and good reason for changing. Salary moderate to start. Address D. O. C., care of this journal

POSITION WANTED as Chemist or Manager of a Flavoring Extract House; thoroughly experienced with all details of business, also experienced in manufacturing all kinds of toilet articles, also deodoring greaseless cream, cold cream, face and talcum powders, perfumes and pharmaceutical preparations. Address CHEMICAL, care of this journal.

PERFUMER skilled in manufacturing complete line of perfumes, toilet articles and creams, also experienced in flavoring extracts, medical and household preparations, wants position with reliable concern where ambition and knowledge will be appreciated. Eight years' experience in this country and abroad. Address German, care of this journal.

Synfleur Quality

REG. U. S. PAT. OFF.

Standard Perfume and Flavoring Materials

Single Constituents of Flower Odors

are invaluable to the manufacturing perfumer. Frequently the addition of a small amount of one of these substances gives individuality and many make totally new odor effects possible. Synfleur materials include all constituents in demand—and their quality is absolutely the best, many of them are beyond all comparison. Not merely "commercially pure," but of the highest purity attainable, goods that are always uniform and can be used *in the Finest creations*. A few suggestions:

Acetophenone-Synfleur. $6.00 lb. Pungent orangelike odor.
Amyl Benzoate-Synfleur. $3.00 lb. Entirely new odor effect.
Amyl Salicylate-Synfleur. $1.50 lb. (Orchidee). Sweeter odor than any other brand. Free from all rank by odor (Fusel Oil).
Benzyl Acetate-Synfleur. $1.25 lb. (25 lb. cans $1.10). Highest quality.
Benzyl Alcohol-Synfleur. $2.50 lb. Highest quality. Absolutely no by odor.
Benzyl Benzoate-Synfleur. $1.25 lb. (25 lb. cans $1.10). Highest quality.
Benzyl Butyrate-Synfleur. $5.50 lb. Entirely new odor effect.
Benzyl Formate-Synfleur. $8.00 lb. Very sweet, new odor effect.
Benzyl Iso Eugenol-Synfleur. $8.00 lb. Snow white needles. Almost odorless, but excellent fixative.
Bromelia-Synfleur. $2.75 lb. (Beta Naphtol Ethyl Ether). Highest purity.
Cinnamic Acid-Synfleur. $2.40 lb. Snow white crystals. Superior to any brand.
Cinnamic Alcohol-Synfleur. $8.00 lb. Crystalline. Fine odor. Highest quality.
Citral Synfleur. $3.25 lb. Powerful Verbena odor. Highest purity.
Citronellol—see Rodinol-Synfleur, which consists of Citronellol and Geraniol *as present in the flower*. Citronellol is *never* found alone and is useless alone. Manufacturers should realize that when buying Citronellol alone they pay a chemist to *destroy* the Geraniol present and then they add it again—useless expense.
Ethyl Cinnamate-Synfleur. $4.00 lb. White oil. Highest purity.
Ethyl Phenylacetate-Synfleur. $9.00 lb. Honeylike odor. Highest purity.
Ethyl Salicylate-Synfleur. $1.50 lb. Much sweeter than wintergreen or birch oils. Highest purity.
Eugenol-Synfleur. $2.00 lb. Superior in odor to any brand. Highest purity possible.
Geraniol-Synfleur. $4.00 lb. Quality unexcelled.
Geraniol Acetate-Synfleur. $5.50 lb. Very flowery and sweet.
Geraniol Formate-Synfleur. $11.00 lb. Very powerful, reminding of Linden flowers.
Heliotropine Crystals-Synfleur. $1.90 lb. White, absolutely pure crystals.
Iovionol-Synfleur. $36.00 lb.)
Iovionol-D-Synfleur. $30.00 lb.) Greatest delicacy and flowery sweetness, giving richest Violet *flower* effects. Not how cheap,—
Iovionol-E-Synfleur. $50.00 lb.) but how *good*.
Iso-Butyl Benzoate-Synfleur. $3.00 lb. Entirely new odor effect.
Iso-Butyl Salicylate-Synfleur. $3.00 lb. (Orchidone). Invaluable in all Trefle and Orchid odors. Highest purity.

(See next page for continuation.)

Synfleur Scientific Laboratories
Established 1889
Alois von Isakovics, Proprietor
Monticello, New York, U. S. A.

Synfleur Quality

REG. U. S. PAT. OFF.

Standard Perfume and Flavoring Materials

(Continued from previous page.)

Single Constituents of Flower Odors

Iso Eugenol-Synfleur. $2.50 lb. Quality unsurpassed. Entirely free from phenolic, burnt or sour by odors found in commercial brands.

Jacinthe-Synfleur. $16.00 lb. Pure Phenylacetic Aldehyde 50%. We can also supply the 100% (to order only) but this does not keep as well.

Linalool-Synfleur. $6.00 lb. Flowery sweetness unexcelled.

Linalyl Acetate-Synfleur. $7.00 lb. (Linahya) 80% Ester guaranteed, but usually averages 85%. No camphor by odor.

Linalyl Formate-Synfleur. $11.00 lb. Imparts entirely new odor effect.

Melilot-Synfleur. $6.00 lb. Highest purity. Unexcelled in quality.

Methyl Anthranilate-Synfleur. $16.00 lb. *Snow white dry crystals. Odor far ahead of other brands.*

Methyl Anthranilate-C-Synfleur. $9.00 lb. Commercial quality, equal to any other brand on the market.

Methyl Benzoate-Synfleur. $1.25 lb. (Niobe). Much used in soaps. Highest purity.

Methyl Cinnamate-Synfleur. $3.75 lb. Snow white crystals. Highest purity.

Methyl Eugenol-Synfleur. $5.00 lb. Invaluable in combinations. Highest purity.

Methylindol-Synfleur. $2.00 gramme. 15 to 20 times as strong as Indol and never discolors solutions.

Methyl Iso Eugenol-Synfleur. $7.00 lb. Invaluable in combinations. Odor perfect. Highest quality.

Methyl Para Cresol-Synfleur. $18.00 lb. Enormously powerful Ylang constituent. Highest purity.

Methyl Phenylacetate-Synfleur. $9.00 lb. Honeylike odor. Highest purity.

Phenylacetic Aldehyde-Synfleur. $16.00 lb. (50%, as the 100% does not keep as well.)

Phenylethyl Acetate-Synfleur. $30.00 lb. Entirely new odor effect. Highest purity.

Phenylethyl Alcohol-Synfleur. $27.00 lb. Quality unsurpassed.

Phenylethyl Benzoate-Synfleur. $65.00 lb. Very sweet effect, durability wonderful, special for Violet and Lily odors.

Phenylethyl Formate-Synfleur. $38.00 lb. Entirely new odor effect. Very roselike.

Phenylethyl Phenylacetate-Synfleur. $65.00 lb. White crystals. Sweetest odor. Highest purity.

Phenylethyl Propionate-Synfleur. $64.00 lb. Entirely new odor effect. Highest purity.

Rodinol-Synfleur. $18.00 lb. Citronellol and Geraniol as present in the rose blossom.

Rodinol Acetate-Synfleur. $22.00 lb. Very roselike in character.

Rodinol Formate-Synfleur. $24.00 lb. New rose effect for bouquets.

Santalol-Synfleur. $8.00 lb. Highest purity. Very fine odor suitable for the best perfumes.

Yara-Synfleur. $3.50 lb. (Beta Naphtol Methyl Ether). Odor unexcelled, white crystals.

Just a few suggestions from our January list. Standard Synfleur Quality—materials used by the largest manufacturers in the world. The Quality is worth the price—results prove it!

Yours to command,

Synfleur Scientific Laboratories

Established 1889

Alois von Isakovics, Proprietor

Monticello, New York, U. S. A.

INDEX TO ADVERTISEMENTS